VOL. XXXVII. No. 5 MAY 1952

MECCANO MAGAZINE

THE MATTERHORN

9D.

DINKY TOYS

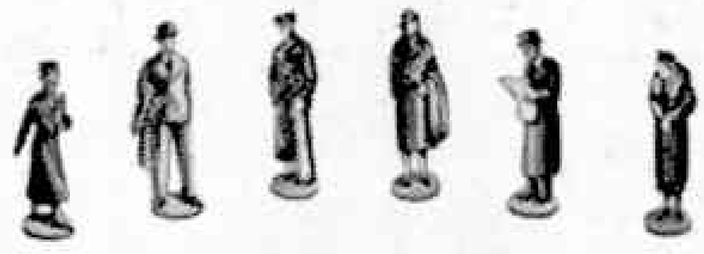
TRADE MARK REGD.

These attractive miniature figures add the essential touch of realism to OO and O gauge railways and can also be used effectively with Dinky Toys vehicles.

GAUGE OO

No. 1001—Station Staff

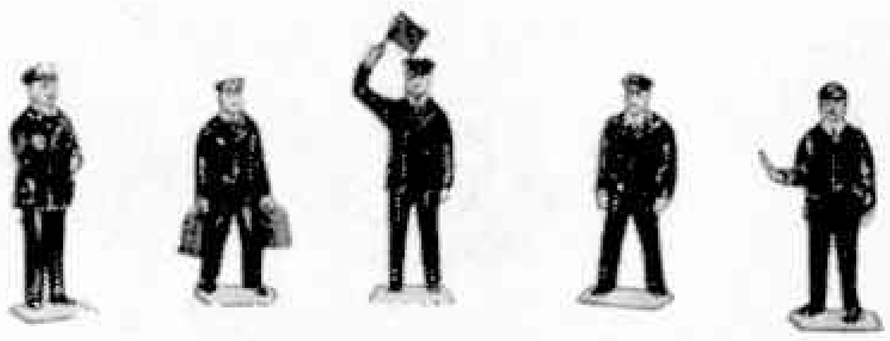
Shunter, Guard, Stationmaster, Ticket Collector, Engine Driver, and Porter with luggage.
Price of complete set **3/3**



No. 1003—Passengers

Three men and three women Passengers.
Price of complete set **3/3**

GAUGE O



No. 1—Station Staff

Ticket Collector, Porter with Luggage, Guard, Porter and Engine Driver.
Price of complete set **4/8**

No. 2—Farmyard Animals

Two Cows, two Horses, a Pig and a Sheep.
Price of complete set **6/6**

No. 5—Train and Hotel Staff

Two Dining Car Attendants, two Hotel Porters and a Dining Car Conductor.
Price of complete set **4/8**

No. 3—Passengers

Hiker (man), Business Man, Mother and Child, Woman, Newsboy, and Hiker (woman).
Price of complete set **5/3**

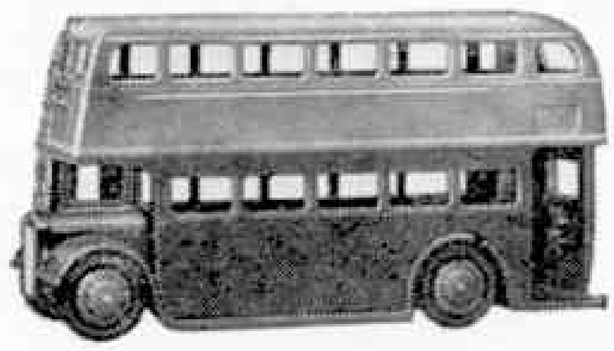
No. 4—Engineering Staff

Engineroom Attendant, Two Fitters, Storekeeper, and Greaser.
Price of complete set **4/8**

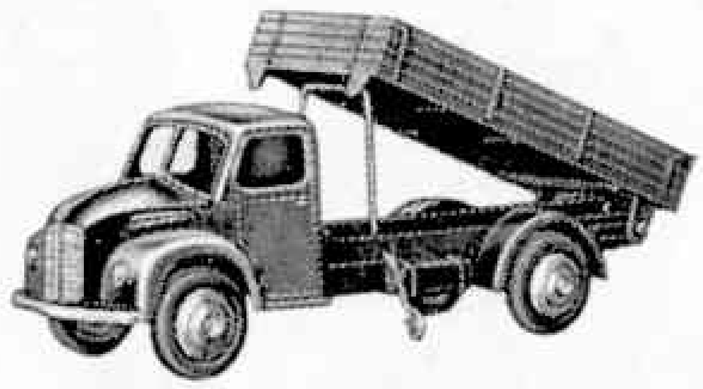
No. 6—Shepherd Set

Shepherd, Sheep Dog and four Sheep.
Price of complete set **4/4**

Austin 'Atlantic' Convertible
No. 140a
3/11

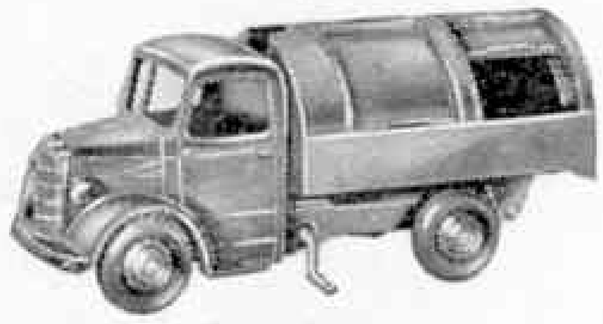


Double Deck Bus
No. 29c
4/8



Rear Tipping Wagon
No. 30m
3/11

Ford "Fordor" Sedan
No. 139a
3/1



Refuse Wagon
No. 25v
7/2

Rover 75 Saloon
No. 140b
3/9

Prices include Purchase Tax

Keep the wheels turning. Tyres for Dinky Toys can be obtained from your dealer

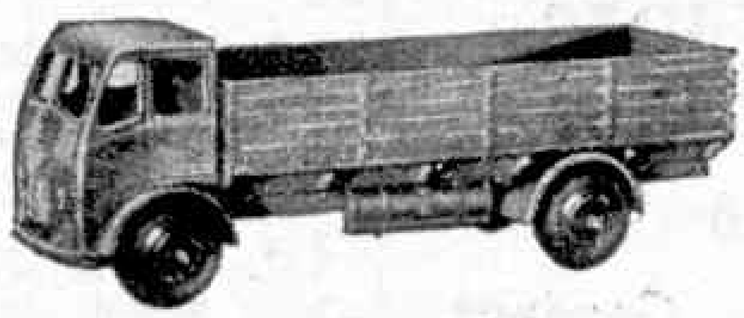
MADE IN ENGLAND BY MECCANO LIMITED

DINKY TOYS

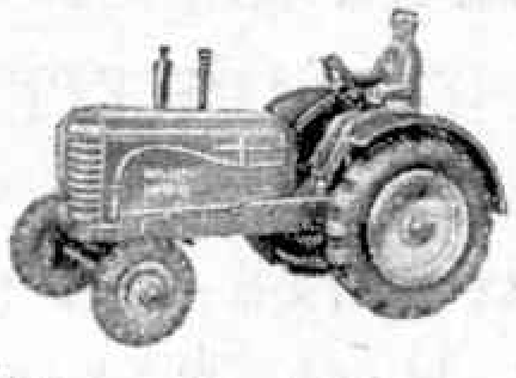
TRADE MARK REGD.

The Favourite Collecting Hobby

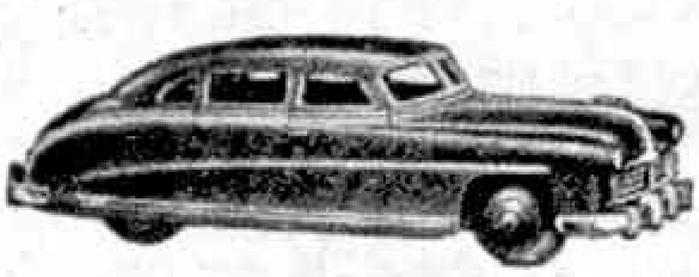
Bedford Truck
No. 25w
4/4



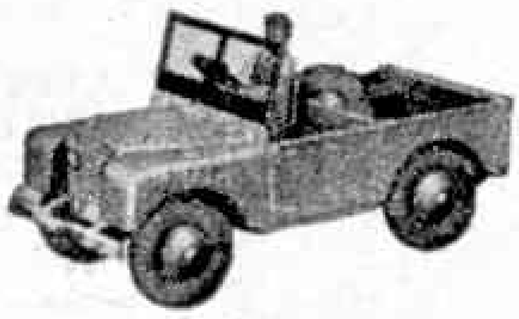
Forward Control Lorry
No. 25r
2/11



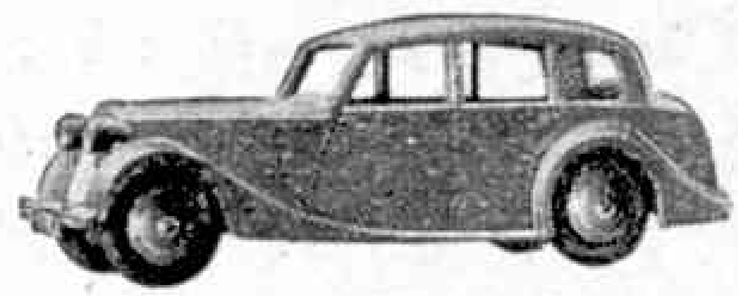
Massey-Harris Tractor
No. 27a
4/8



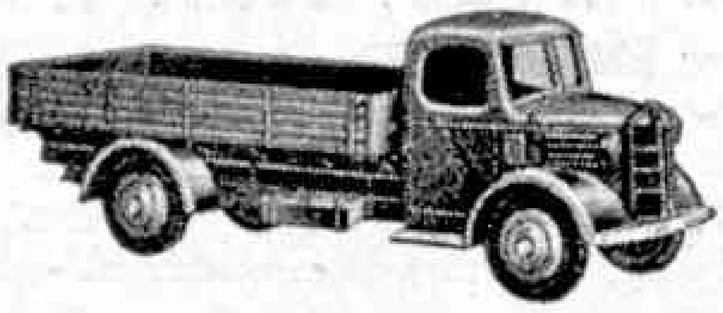
Hudson
"Commodore" Sedan
No. 139b
3/9



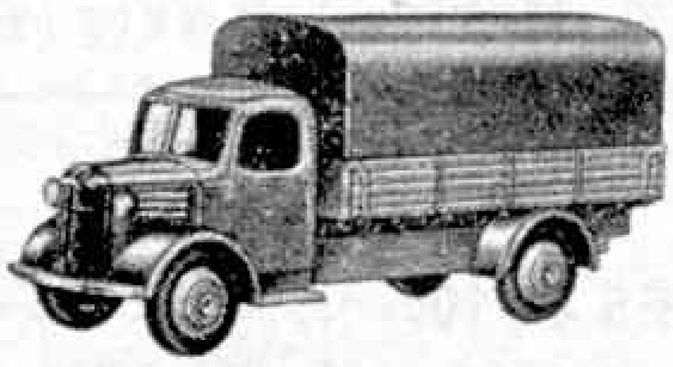
Land Rover
No. 27d
4/8



Triumph '1800' Saloon
No. 40b
2/11



Austin Wagon
No. 30j
2/11

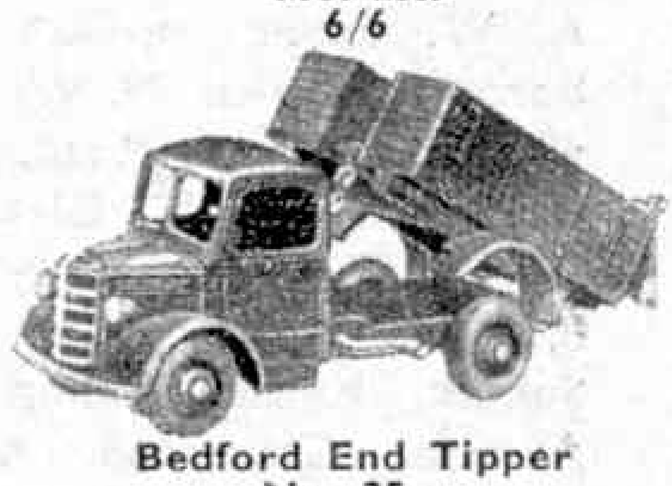


Austin Covered Wagon
No. 30s
3/6

Breakdown Lorry
No. 25x
6/6

Daimler Ambulance
No. 30h
3/5

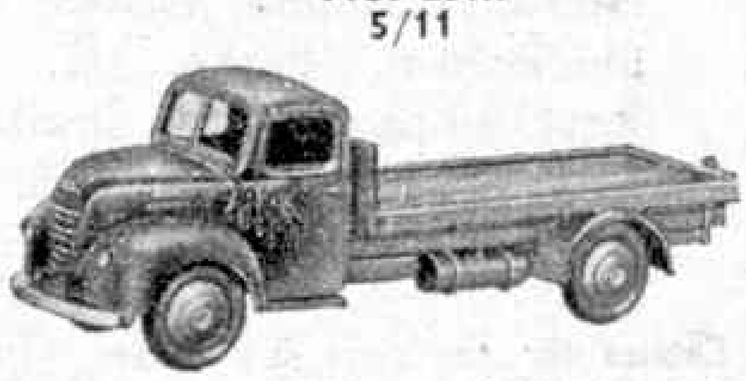
Estate Car
No. 27f
3/5



Bedford End Tipper
No. 25m
5/11

Morris Oxford Saloon
No. 40g
2/11

Austin "Devon" Saloon
Dinky Toys No. 40d
2/11



Fordson "Thames" Flat Truck
No. 30r
2/11

Prices include Purchase Tax

Keep the wheels turning. Tyres for Dinky Toys can be obtained from your dealer

MADE IN ENGLAND BY MECCANO LIMITED

PRIZE WINNERS of the

BRICKPLAYER

COMPETITION 1952

1st PRIZE—£10 : 10 : 0

C. Mudd, 22, Kenilworth Gardens, Staines, Middlesex.

2nd PRIZE—£5 : 5 : 0

R. Springett, 4, Rectory Lane, Maidstone, Kent.

3rd PRIZE—£3 : 3 : 0

D. F. Place, Money Glass House, Toomelbridge, Co. Antrim, N. Ireland.

CONSOLATION PRIZES of 10/- each (Brickplayer Components)

A. W. Boyes, 4, Ash Road, Guisborough, Yorks. M. W. Frost, Eldon, 49, Penwortham Road, Sanderstead. D. Goodwin, 5, Girton Gardens, Shirley, Croydon, Surrey. K. Godfrey, 8, Highbury Road, Bury St. Edmunds, Suffolk. Keith Harding, 32, Lennox Avenue, Gravesend, Kent. E. H. Hunter, London Thatch, Mill Lane, Sindlesham, Berks. G. Leeke, 8, Rockhampton Road, South Croydon, Surrey. T. J. Rapley, 55, Woodside Road, New Malden, Surrey.

Entries for the next Brickplayer Competition must be submitted between 1st January and 28th February, 1953.

Brickplayer Kits at approximately 28/6 and 52/6 and extra accessories are available from good toyshops and departmental stores.

If your dealer cannot supply, write for address of nearest stockist to:

J. W. SPEAR & SONS LTD.
DEPT. M • ENFIELD • MIDDLESEX

GREAT NEWS!

Here's a Passenger Set that until recently was for EXPORT ONLY! If you want England's best—this is it—Terrific Value!

1. A hand-built 4-4-0 "0" Gauge Tender loco (outside cylinder) as used for main line traffic, fitted with our famous electric smoke apparatus (controlled by on/off switch) 12 volt D.C. consumption 1.5 amps.
2. Two Saloon and one Brake Compo. Coaches, absolutely fully detailed and painted true to type.
3. One oval of 3-rail track 3' 10" radius, overall size 9' 8" x 8' 2".
4. Presentation Case.

Price £24-4-0 (incl. P. Tax)

UNDOUBTEDLY THE FINEST BOXED RAILWAY PRODUCED IN THE WORLD TO-DAY

"0" Gauge Combined Manual and Catalogue, 100 pages. .. .. Price 2/6 post free.

THE LEEDS MODEL CO. LTD.
DEWSBURY ROAD, LEEDS 11
ENGLAND

THE ERG CATALOGUE AND MANUAL
Price 3/6 (by post 3/10)

"CARDBOARD ROLLING STOCK AND HOW TO BUILD IT"
Price 2/6 (by post 2/9)

"A STUDY OF THE MODEL RAILWAY"
Price 3/6 (by post 3/9)

"POWER POTENTIAL"
Studies of Locomotives at Rest . . . a fine volume containing 12 reproductions of pencil drawings of famous locomotives.

REDUCED PRICE 5/6 Post Free

E·R·G (BOURNEMOUTH) LTD

The Leading 00 Trade Supply Firm
529 ROUMELIA LANE
BOSCOMBE
BOURNEMOUTH

HEAD for SUCCESS with

BRYLCREEM

Smart, clean, well groomed hair puts heart into a fellow, makes him feel on top of the world. That's why men of achievement take good care to use Brylcreem. They know that where personal appearance counts only the best will do—and the best is Brylcreem. It's the perfect hairdressing. Brylcreem comes in easy-dip, easy-grip tubs 1/8, 2/6, and 4/6 or handy tubes 2/6.

BRYLCREEM your hair

royds 71/38

FREE

104-PAGE BROCHURE

This free brochure describes the Courses of Training offered by E.M.I. Institutes—the only Postal College which is part of a world-famous industrial Organisation.

• Aeronautical Engineering • Motor Engineering • Draughtsmanship • Elect. Engineering • Production Engineering • Management • Languages • Refrigeration Engineering • Civil Service • General Certificate of Education • Radio, Television and Electronics • University Training • Mathematics • Mechanical Engineering • Heating & Ventilating Engineering • Public Speaking • Police • Telecommunications, etc. etc. Special Courses for A.M.I.Mech.E., A.M.I.C.E., A.M.I.P.E., A.M.I.Brit.I.R.E., A.F.R.Ae.S., City & Guilds Exams., etc.

EMI INSTITUTES *associated with* **MARCONIPHONE COLUMBIA & H.M.V.**

COURSES FROM **£1** *PER MONTH*

POST NOW

This coupon entitles you to a FREE copy of "Successful Careers".
Post to E.M.I. Institutes, Dept. 197,
43 Grove Park Road, Chiswick, London, W.4

Name .....

Address .....

.....

IC9

Go out with 'MERIT' and get fun

TELESCOPE No. 1100
Companion to thousands of Boys. Very good magnification, with optically-ground glass lenses easily accessible for cleaning. **6/6** no tax

MERIT 'RAMBLER' BINOCULARS
All-plastic with unbreakable lenses. Good magnification and individually focusing eyepieces. Complete with lanyard. **6/11** no tax

12/6 inc. tax

Overall length 17 in.

MERIT 'INVADER' WATER MACHINE GUN
Exceptionally well-moulded hard-wearing plastic, this 500-shot repeating sub-machine gun will outshoot any other water gun.

MERIT JET WATER PISTOL
A super Water Pistol firing 200 shots with one filling. Strongly moulded in a variety of bright colours. In carton.

4/11 inc. tax

4/3 inc. tax

MERIT SAFETY DART PISTOL
Strongly moulded, brightly coloured. Complete with two suction-pad darts which stick to any smooth surface. Packed in attractive carton.

See 'Merit' and S.E.L. products at good dealers. Send p.c. for Illustrated List to

J. & L. RANDALL LTD
(Associated Company: SIGNALLING EQUIPMENT LTD)
(Dept. 3), Merit House, Potters Bar, Middlesex

ΦBI

Be a good scout
Tell me where I
can get a bike
like yours...
. . . from the finest Cycle
Show in Town, of course, at
Currys LTD.
Britain's Largest Cycle Distributors
RALEIGH · HERCULES · TRIUMPH · ROBIN HOOD
235 BRANCHES THROUGHOUT ENGLAND & WALES
FREE! Write for wizard cycle folder in colour :- Currys Ltd., (Dept. M2), Head Office, 77 Uxbridge Road, Ealing, W.5

Tri-ang MINIC

CLOCKWORK *Scale Models*

Series II

All the models in this lively scene are Series 2 Minics—You know them, they're the BIG scale models with all the special, exclusively MINIC, features! Rotating turrets, smoking guns, 4-speed gear boxes, full steering, working horns....but there is no end to it—these terrific models not only look like the full-size vehicles, they work like them too!

As we do not supply direct, go along to your local MINIC dealer and ask to see the huge range of these wonderful models now available.

Manufactured by

LINES BROS. LTD., Merton, London S.W.19, England

It's a real thrill to build — a FIRE-STATION

ASK YOUR DEALER FOR DETAILS OF

BAYKO

the Original Plastic BUILDING SETS

This Fire-Station is one of the numerous models that can be made with the No. 4 BAYKO Set

Made from richly coloured, high-grade plastic material, BAYKO is beautifully finished, easily cleaned and will survive years of hard treatment.

PRICES:

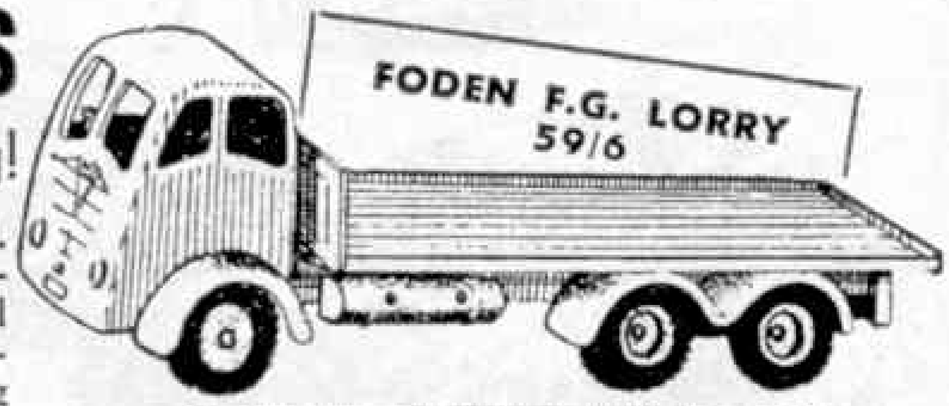
No. 0 ..	.. 15/-
No. 1 ..	.. 22/6
No. 2 ..	.. 37/6
No. 3 ..	.. 59/-
No. 4 ..	.. 118/9
No. 0x ..	.. 7/6
No. 1x ..	.. 15/-
No. 2x ..	.. 22/6
No. 3x ..	.. 60/-

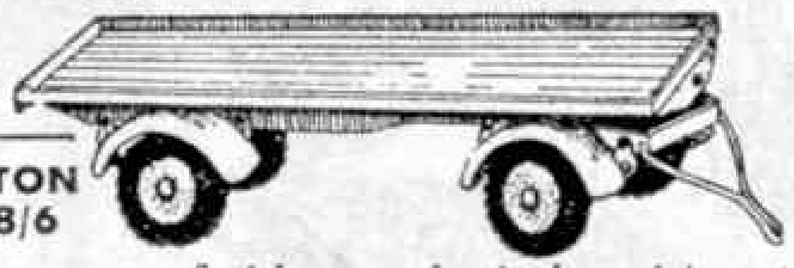
PLIMPTON ENGINEERING Co. Ltd.
GIBRALTAR ROW, LIVERPOOL 3

Foden SCALE **MODEL LORRIES**

You can dismantle them—just like the real thing!

They come ready assembled. Standardised parts—all replaceable. Shaft drive. Universal coupling. Ackerman-type steering. Floating rear bogie. Rubber tyres. Powerful Spring Drive.





★ ASK YOUR DEALER TO SHOW YOU THESE WONDERFUL MODELS

Marketed by **ABBEY CORINTHIAN GAMES CO., London S.W.1**

WEBLEY AIR PISTOLS

Marvellously accurate for target practice

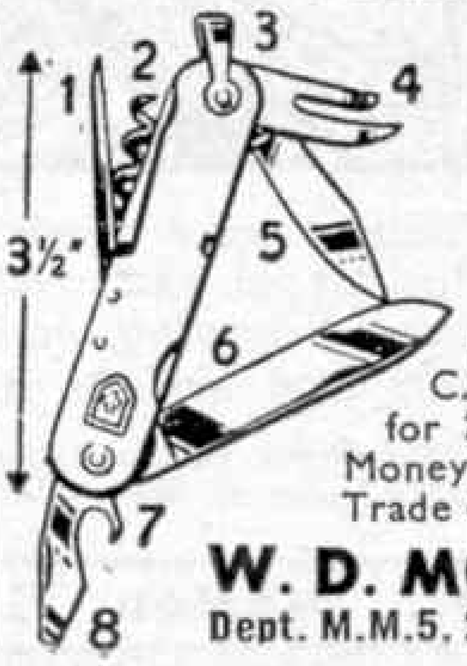
No licence required to purchase for use on enclosed premises.

Senior Mark 1
Junior Webley Air Rifle

Write for list. WEBLEY & SCOTT LTD., 87, Weaman Street, Birmingham, Eng.

W.S.5.R.

SENSATIONAL OFFER OF A "SWISS" COMPANION KNIFE

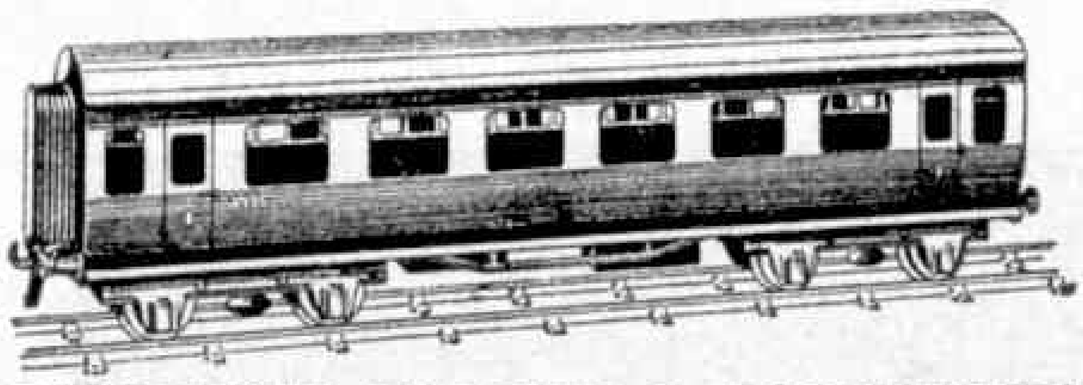


with EIGHT attractions—Awl, Corkscrew, Safety Ring, Tin-Opener, 1½ in. Blade, 3 in. Blade, Bottle Opener, Screw-driver. Finest French make, razor-sharp, strong yet light and handy. Easily worth double.

Send 9/- for immed. delivery, C.O.D. 1/- extra. 3 for 25/-. 5 for 40/-. Money back guarantee. Trade enquiries invited.

8/6 POST etc. 6d

W. D. MORGAN & CO. LTD.
Dept. M.M.5, 2, Gray's Inn Road, London W.C.1



PASSENGER COACHES & ACCESSORIES

for your Gauge '0' Model Railway

BRITISH RAILWAYS PASSENGER COACHES
First or third class corridor and third class composite brakes, finished in B.R. colours. A new design compensating bogie is fitted and the vehicles are supplied with corridor connections. These low-priced Gauge '0' passenger coaches will be an attractive feature of your railway system. Price each £2 . 4 . 0 including Purchase Tax

In addition to the above, we have now introduced three L.M.S. type steel goods vans ranging in price from 7/6 to 10/-, plus P.T.
Other accessories include Signals, Colour Light Signals, Loading Gauge, etc. For full details of these and our famous Gauge '0' Locomotive, write for our illustrated catalogue "Gauge '0' Model Railways," Ref. GO/17, Price 1/-, or call at our London or Manchester Showrooms.

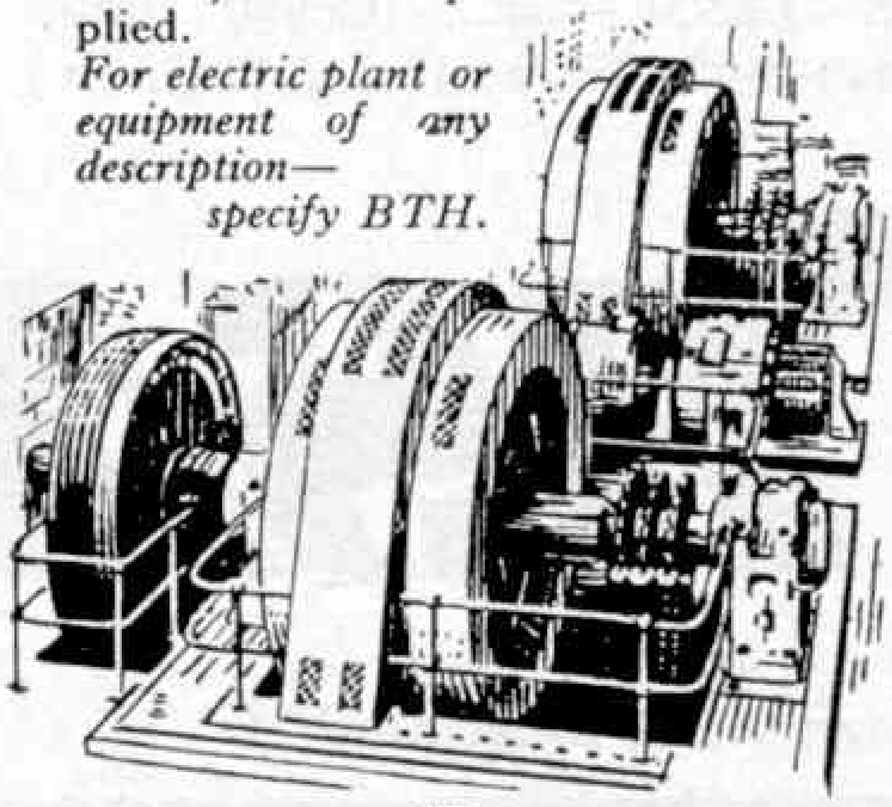
BASSETT-LOWKE LTD.

Head Office and Works:
NORTHAMPTON
LONDON: 112, High Holborn, W.C.1
MANCHESTER: 28, Corporation Street

Electric Motors

Whatever the type or size, from ¼h.p. up to the largest outputs required, BTH motors of exceptional reliability and proved performance, can be supplied.
For electric plant or equipment of any description— specify BTH.

by B T-H



THE
BRITISH THOMSON-HOUSTON
COMPANY LIMITED, RUGBY, ENGLAND. A4285

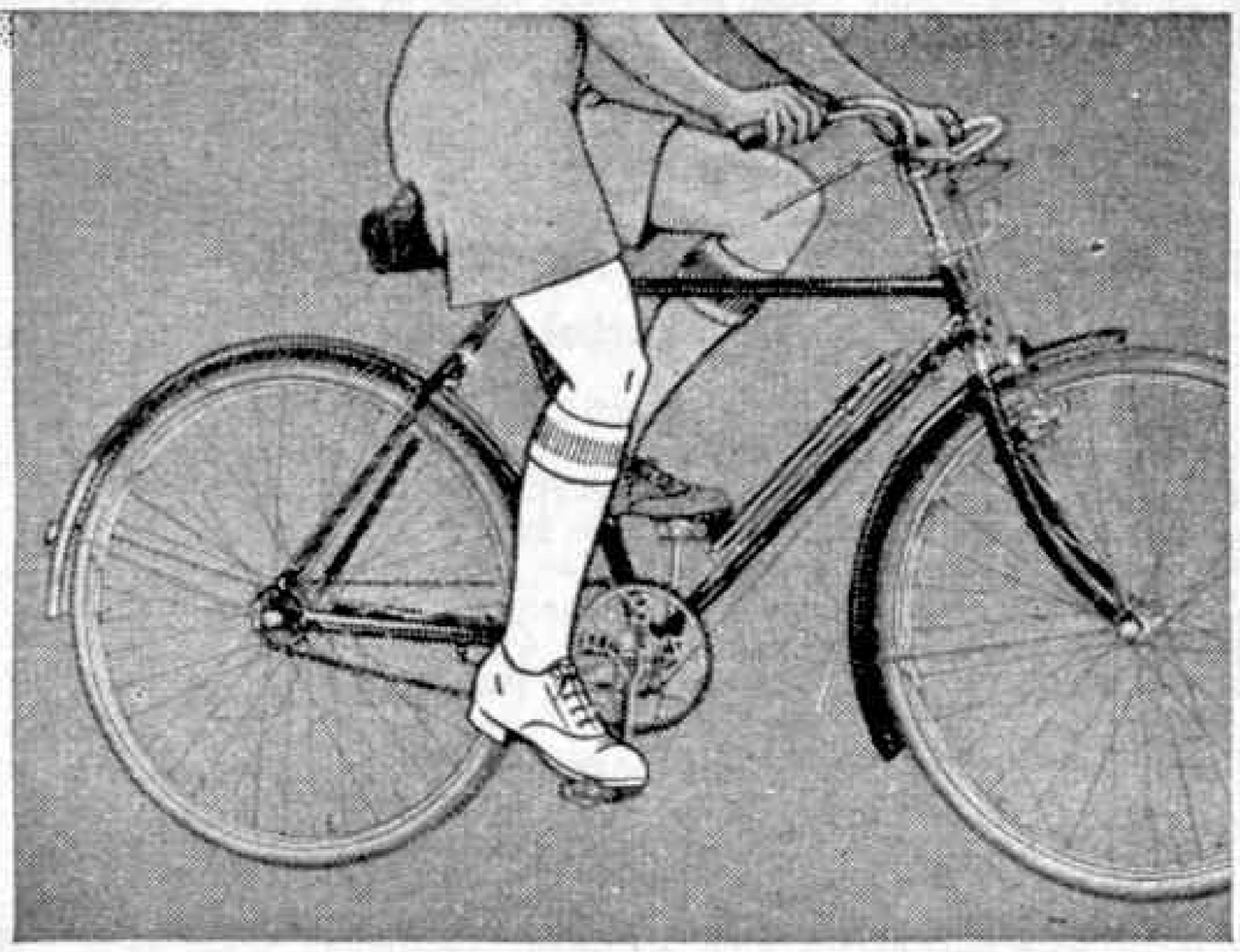
Keep your eye on Halfords

. . . and be sure of the finest selection of spares, accessories and equipment, including a full range of "Halford" "Raleigh" and "Robin Hood" Cycles —there's a Halford's branch in every large town.

THE HALFORD CYCLE COMPANY LIMITED
HEAD OFFICE
239 CORPORATION STREET
BIRMINGHAM 4.

BRANCHES IN ENGLAND, SCOTLAND AND WALES

HOW TO RIDE YOUR BSA CORRECTLY



USE THE ball of your foot for pedalling, and bring the toe down on the downward movement. "Ankling" as the experts call it uses the full power of the leg muscles and gives you a much smoother, easier ride. Pedalling with the instep or arch of your foot—as lots of beginners do—wastes effort and is definitely *wrong*.

BSA JUNIOR ROADSTER SAFETY MODEL

LOOK FOR THE "SAFETY MODEL" transfer on the seat tube. Light but sturdily built 18 in. frame. Black and chromium finish. Wheels 24 in. Dunlop tyres. Chromium plated, upturned handlebar. Roller lever brakes. Price £10.10.0 plus £2.9.0 Tax. (Colour finish extra—boy's Windsor Red, girl's Green.)

If you're really going to enjoy your cycling

IT'S TIME YOU HAD A BSA

If you'd like a free catalogue write to

B.S.A. CYCLES LTD., 31, Armoury Road, Birmingham 11

Next Month: "WHAT HOLDS UP A SKYSCRAPER?" By R. J. Salter

MECCANO MAGAZINE

Editorial Office:
Binns Road
Liverpool 13
England

Vol. XXXVII
No. 5
May 1952

Editor's Holiday

Yes, even Editors have holidays—sometimes. I well remember one such occasion that coincided with the fourth Test Match of the 1948 series between England and Australia. As I was then near Leeds I joined the great crowd in the Headingley ground and watched the English team bat throughout the first day of the match for the loss of only two wickets.

My chief memory of the game is of the century scored by Cyril Washbrook, whose innings of 143 only came to an end just before the close of play. I was particularly entranced by the ease with which the famous Lancashire batsman met the high speed attack of Lindwall, and I wondered how any human being could size up the situation and bring his strokes into play in the incredibly short time that bowling of this speed and class allowed.

I recalled this innings a few weeks ago when I had the great pleasure of meeting Cyril Washbrook himself. To my delight he agreed to write an article on cricket for *"M.M."* readers. This will appear in the June issue of the *"M.M."* and I am sure that it will be eagerly awaited, for this great batsman will give valuable hints and suggestions that will be very helpful to all who play the game.

Her Majesty Queen Elizabeth II.
May long life and true happiness attend her!

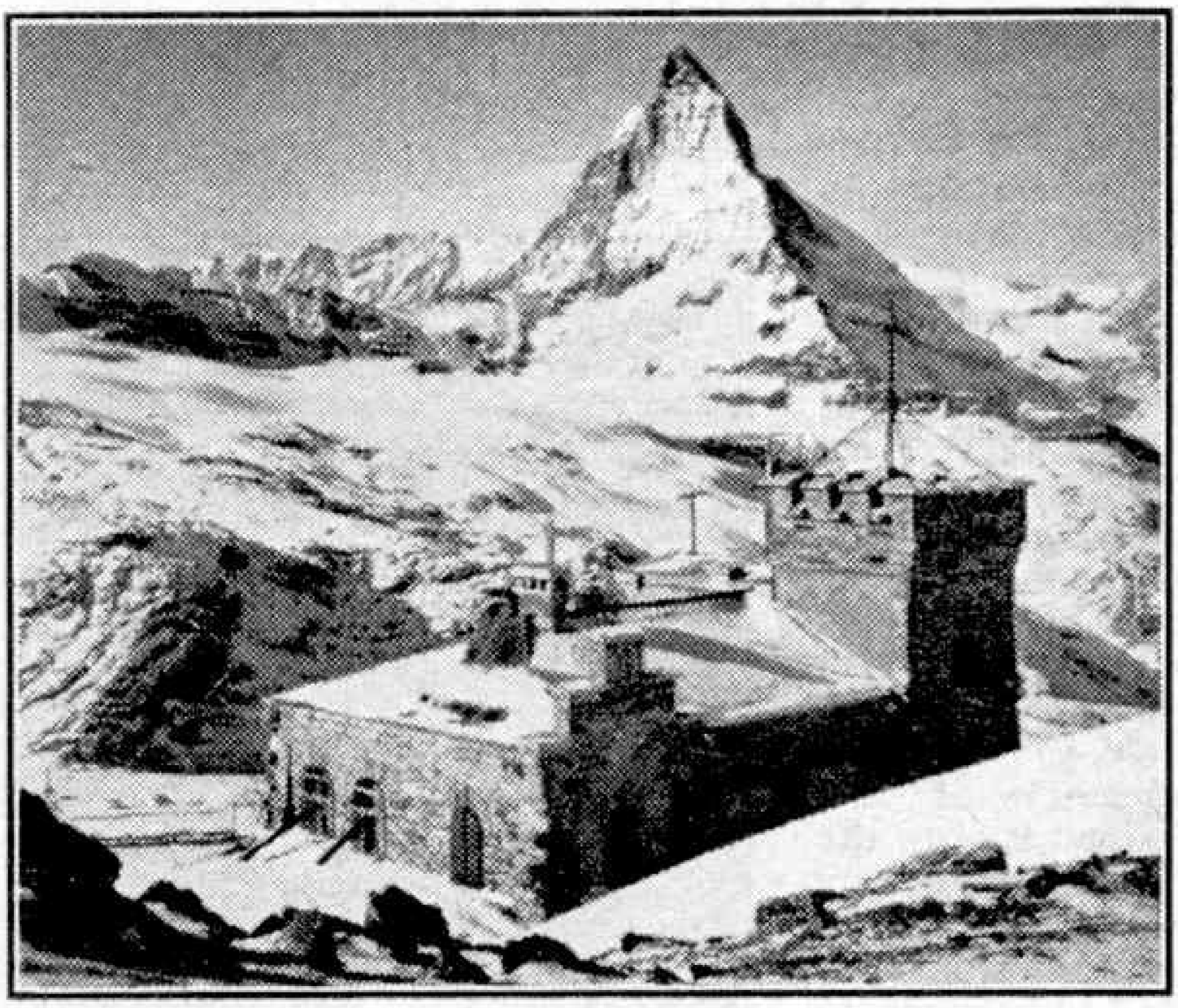
Curiously enough, another article in the June *"M.M."* has some association with my holidays, for it concerns the Forth Bridge, and I first saw the giant cantilevers of this famous structure when I was on holiday in the Edinburgh area. The privilege of crossing the bridge on foot is seldom granted, but it was accorded to E. M. Patterson, who has written a story about his crossing. Look out for this and also for next month's cover, a brilliant one showing the Western Region train, *"The Merchant Venturer,"* in full cry for Bristol, headed by a "Britannia."

Make sure of your copy of the June issue now by placing an order for it.

The Mighty Matterhorn

THE craggy peak of the Matterhorn, 14,782 ft. high, is in the Pennine Alps, the vast range between the North Italian plain and the valley of the Rhone in Switzerland that includes Mont Blanc, the highest Alpine mountain, and Monte Rosa, which is little lower than that famous giant. As our cover this month shows, the Matterhorn is thrust like a jagged tooth high up into the sky, to be an irresistible attraction to all and a challenge to mountain climbers.

In its early days the Matterhorn was probably just a great rounded mountain, but in the ages since it was first thrust upward it has undergone many changes. Except active volcanoes, our mountains are indeed just relics of the huge cones they were when formed, for they began to suffer destruction by water and ice as soon as they were formed. Where ice is the great agent of erosion, glaciers bite deeply, gouging out corries and leaving ridges with steep sides, and eventually transforming the mountains into highly angular pinnacles, a characteristic shape of which the Matterhorn is a perfect example.



From Gornergrat Station, at a height of 10,235 ft., there is a splendid view of the Matterhorn. We are indebted to the Swiss Tourist Office for the illustrations to this article, and for the photograph on which the cover of this issue is based.

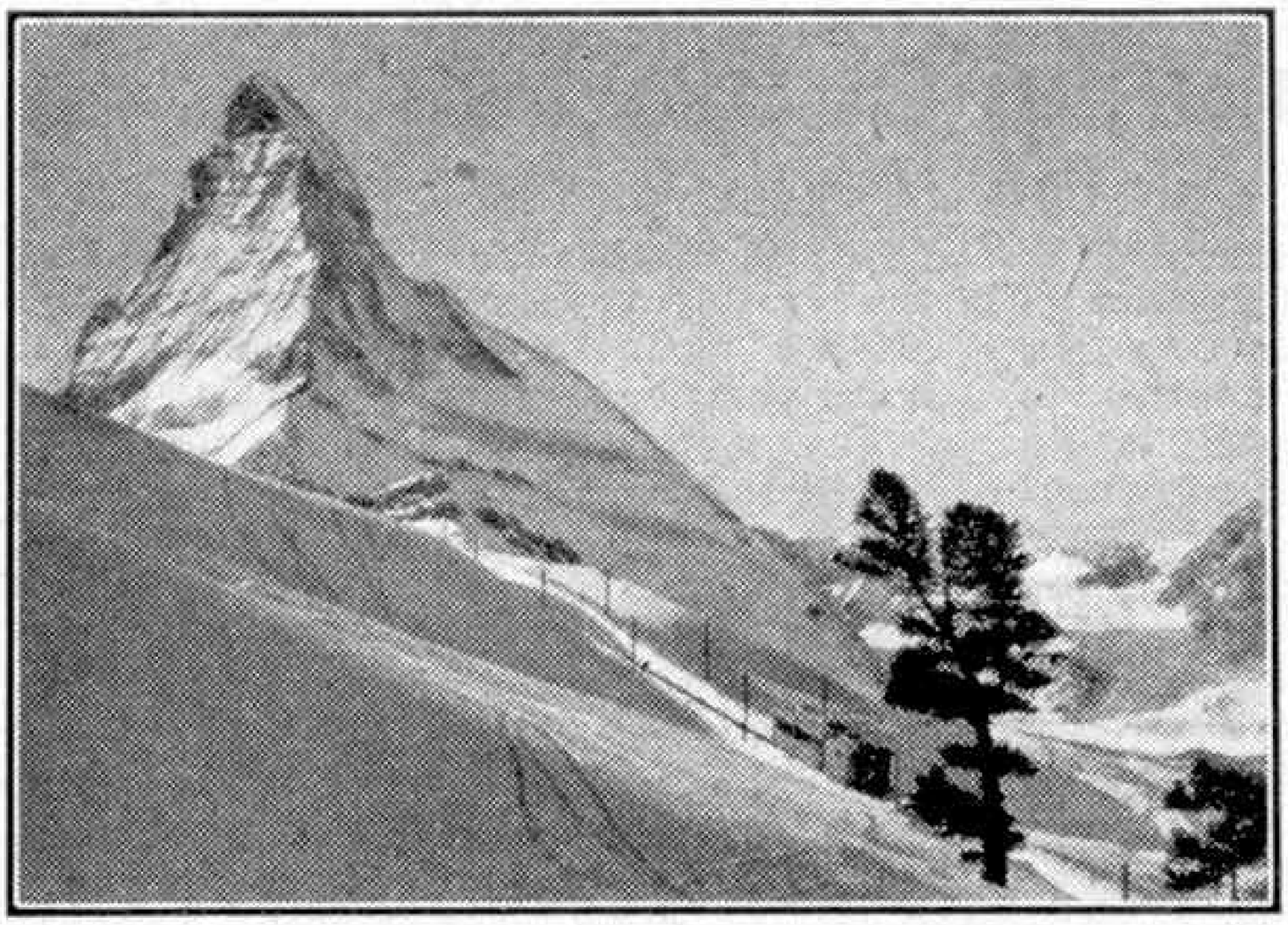
The conquest of the mountain in 1865 was one of the greatest ascents ever made. It was achieved by Edward Whymper, the great climber and explorer, whose name is imperishably associated with this rugged pinnacle. He was fascinated by the mountain and made repeated efforts to find a way to the summit, but success eluded him until his eighth attempt.

There can have been few more dramatic mountain climbing achievements than the first ascent of the Matterhorn. One reason for this was that Whymper had Italian rivals, the foremost of whom was a guide named Carrel, who were determined to be the first to climb the peak. Their project was concealed from Whymper for a time, and when at length he realised their aims he became furious and worked with tremendous energy and at high speed to complete preparations for yet another effort.

Whymper was joined by Lord Francis Douglas and the Rev. Charles Hudson, both practised mountaineers, and a younger man named Hadow who lacked experience but had made some excellent climbs. The party also included three guides, Croz, Old Peter Taugwalder and his son, Young Peter Taugwalder.

In this climb, which in effect had become a race, Whymper attacked the east face, and to his surprise and delight found the going comparatively easy at first. A camp was established at a point 4,000 ft. below the summit, and there the climbers spent the night, some in the tent and the remainder in sleeping bags and blankets on the rocks.

Next morning brought the climax of the struggle. The climbers made their way steadily upward, but eventually found their way barred by the sheer cliffs that fall directly from the summit of the mountain on its eastern side. They found a way round the cliffs to the north east, and after incredible exertions at last reached the first of the Matterhorn's two summits, passing from this to the second.



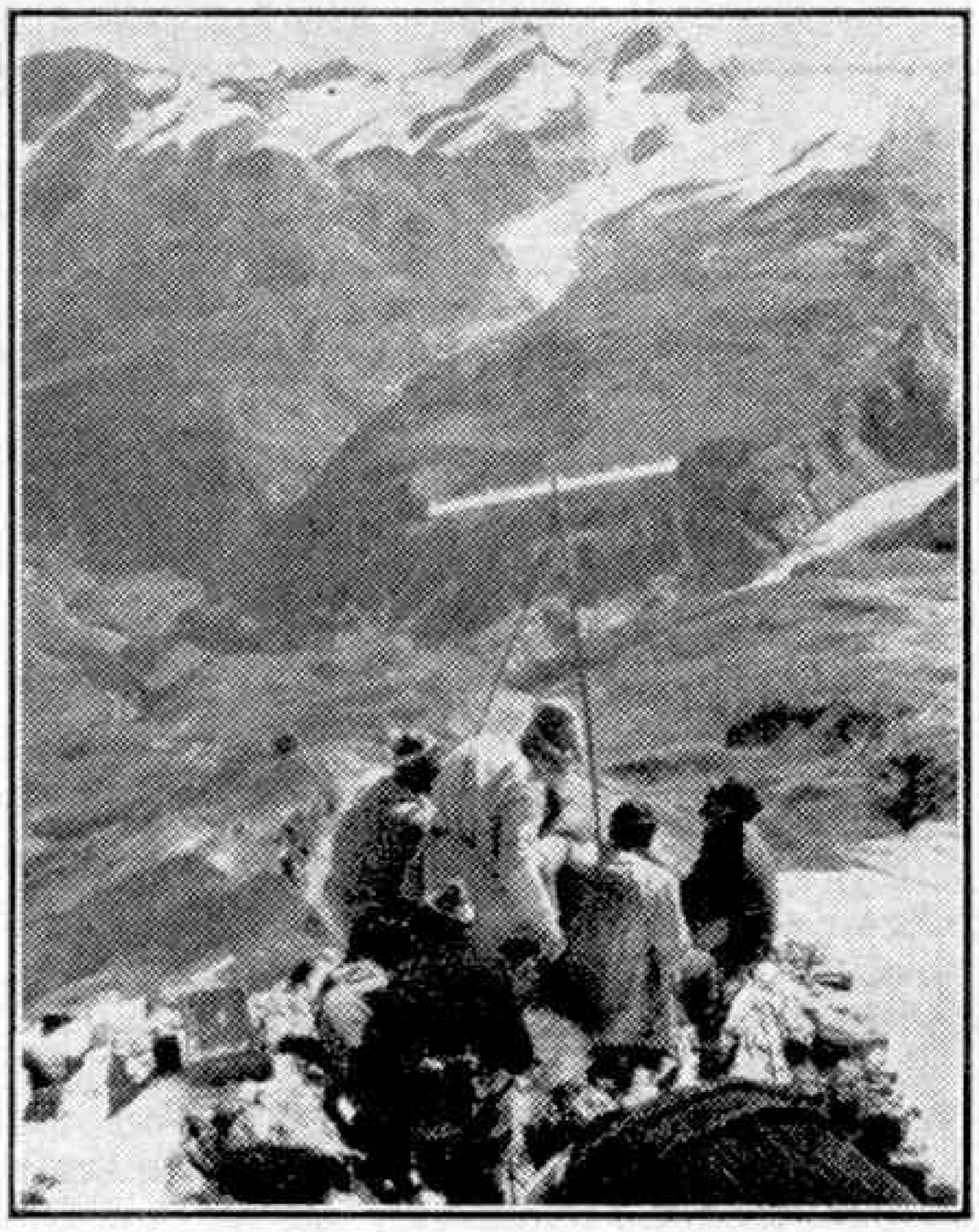
A train on its way from Zermatt to the Gornergrat, an immense wall of rock between two great seas of ice, with the Matterhorn in the background.

Throughout Whymper and his companions had been thinking of the Italians, who had begun their efforts a day or two earlier and who might have already reached the summit. Suddenly Whymper saw their party far below him on the southern side of the mountain, and he realised that he had not only conquered the Matterhorn, but had beaten his rivals and secured the honour of being the first human being to set foot on its highest point. The Italians actually were descending the mountain after failure to reach the summit by the route they had chosen.

Then the members of the triumphant party roped themselves together for the descent. The guide Croz led the way and immediately behind him came Hadow, the least experienced member of the party. The men moved slowly, one at a time, and step by step. At one point Croz helped Hadow to find good foot holes and then began a further step downward himself. Suddenly Hadow slipped and shot through the air, dragging Croz with him. As the rope tightened Douglas and Hudson in turn also were torn from their holds, but Whymper and the two Taugwalders braced themselves to withstand the shock as the rope below them straightened out in mid air, only to see this break. They clung grimly to their holds, but the rest of the party fell helplessly down one precipice after another to the Matterhorn glacier, 4,000 ft. below.

Many readers will remember that this great climb, which ended so disastrously for four members of the party, was made the subject of a famous film with the title "*Flags on the Matterhorn.*" Whymper carried no flag to the summit, but Croz fixed a shirt to an improvised flagstaff and this was seen through telescopes by anxious watchers in Zermatt. Two days later Carrel made another effort from the Italian side and after a desperate climb he and one companion scaled the great peak.

Since Whymper showed the way the Matterhorn has often been ascended, and in difficult parts of the route permanent ropes are now fixed to aid climbers. Those who are not sufficiently energetic or skilful cannot climb the mountain itself, but they can reach a height of 10,235 ft. above sea level on the electric railway that ascends to the great wall of rock known as the Gornergrat. From the terminal station on this ridge the great granite pyramid of the Matterhorn is seen at close quarters across the enormous Gornergrat Glacier, standing at (*Continued on page 238*)



A novel mountain climbing expedition. A B.B.C. representative described the thrills of the Matterhorn ascent by radio in August 1950.

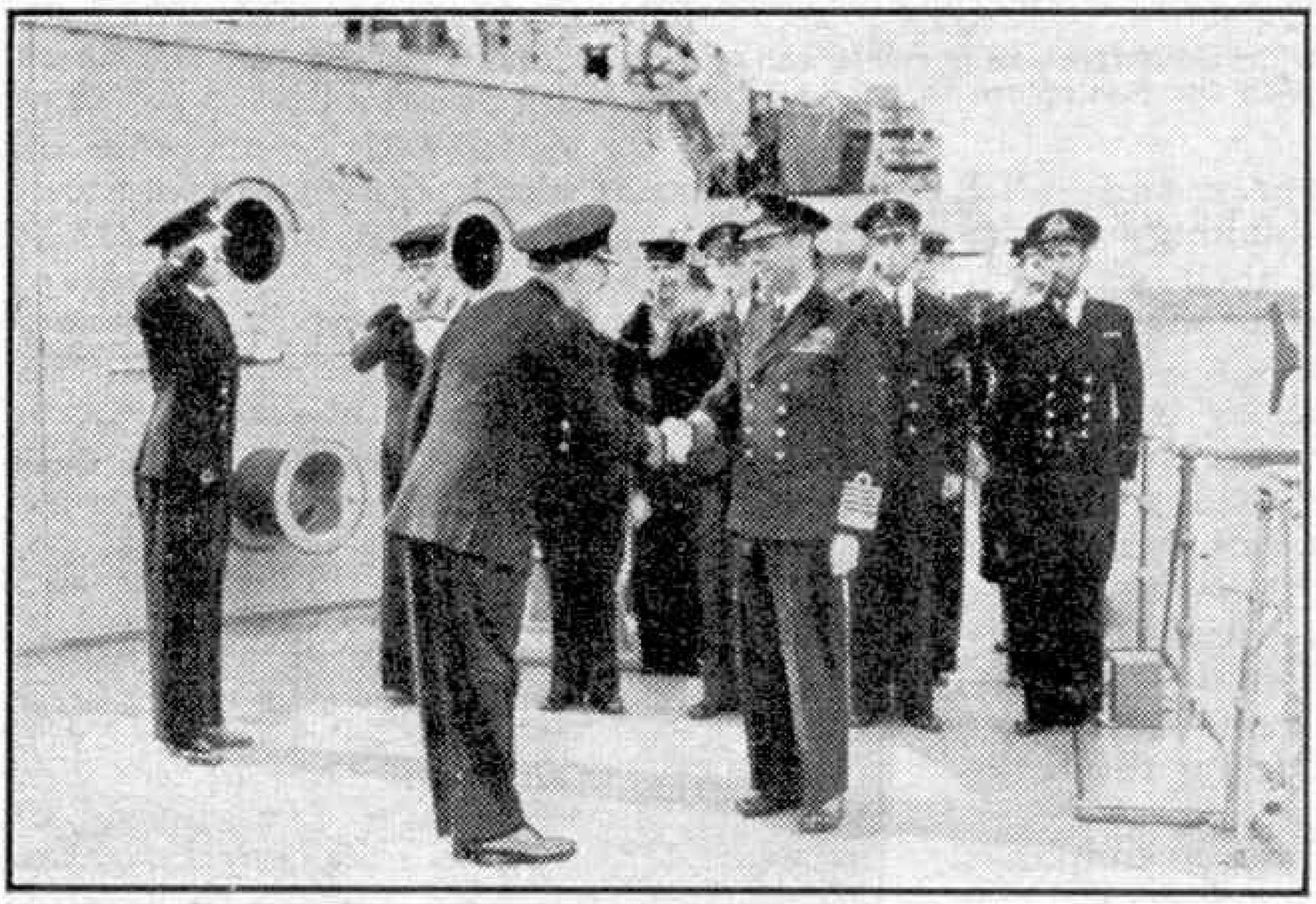
Ceremonial of the Sea

By Morrys Rodney

ALTHOUGH the sea lost much of its romance with the disappearance of sailing ships, there are still many occasions when colourful ceremony returns to brighten up the dull routine of nautical life. Ceremony has always been prominent in the Royal Navy, where tradition is jealously preserved. For instance, no officer or rating would dare to step on the quarter deck of a man-of-war without saluting. Yet nobody has discovered exactly how this practice started. It has been suggested that the salute was originally to a crucifix placed in the ship. But it is more likely to have been introduced as a measure of discipline by one of the Navy's sterner leaders.

Discipline indeed is the basis of most ceremonial in the Fleet. But not all forms of Naval ceremonial are laid down in Queen's Regulations and Admiralty Instructions. There are time-honoured customs still faithfully observed that have never been officially recognised. An example is the hoisting of the paying-off pendant by a British warship when leaving a station overseas on which she has spent a long commission. Its length depends on the period of absence, normally at the rate of one foot for each day served on the station. As the pendant is several hundred yards long, it has to be supported by a gilded bladder to prevent the end from dragging in the sea. It is lowered once the warship is clear of her station, and hoisted again before she reaches her home port.

Paying-off pendants have now been adopted in the Merchant Service, but only for famous liners making their final voyages. In their case the length of the pendant depends on the number of years the liner has been in service. Liners which have worn paying-off pendants include the Orient *"Orsova"* and the P and O *"Kaisar-I-Hind,"* broken up before the war.



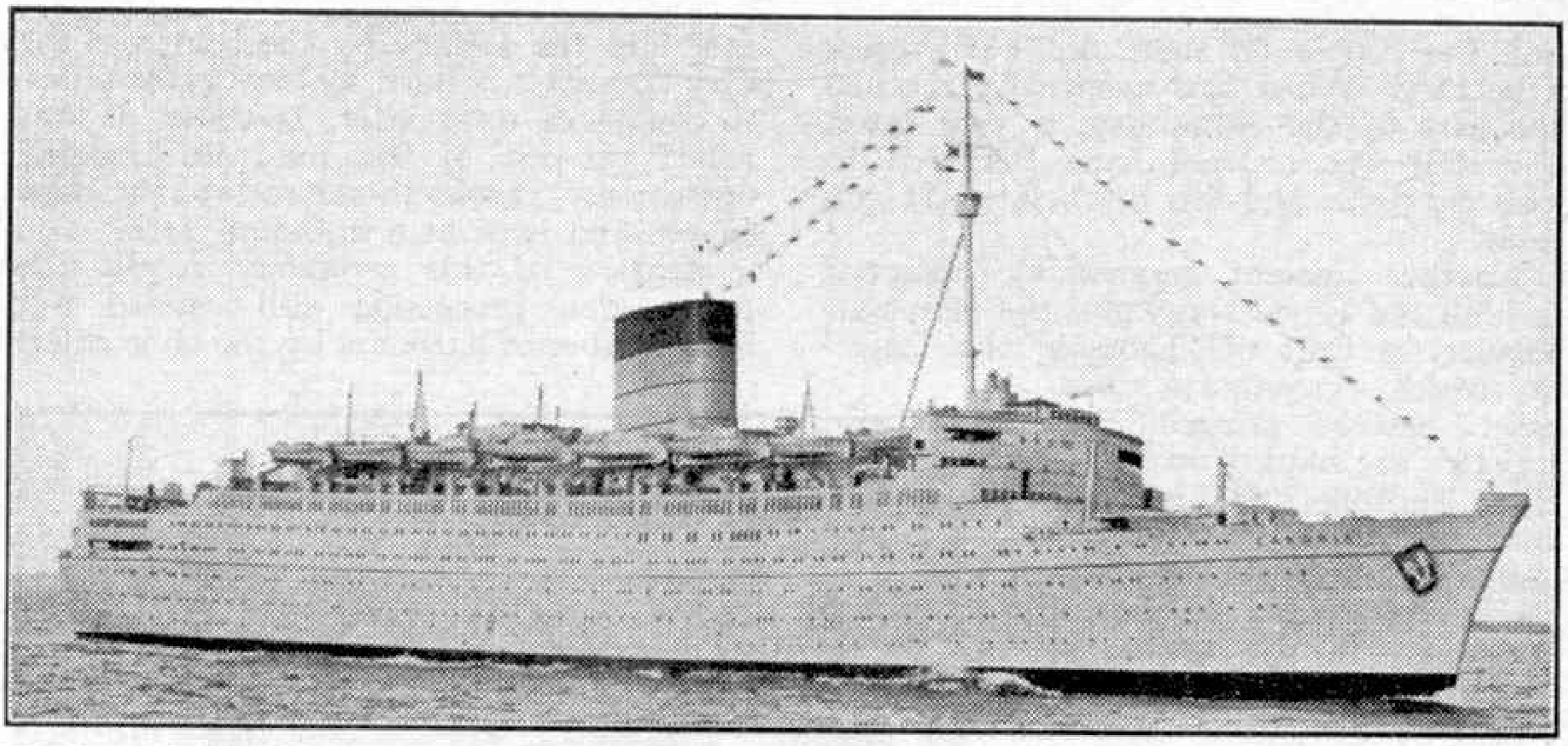
H.M. King George VI being piped on board a warship. This ceremonious welcome is accorded only to senior officers.

Dressing ships with flags on festive occasions is a custom common to the Royal Navy and the Merchant Service. So is the flag salute between ships. In ancient times the King's ships expected those of other nations to salute them by striking their ensigns and lowering the topsails. This was the period when England claimed to be Mistress of the Seas. She was even prepared to go to war with any power which refused to acknowledge her supremacy and orders were given to English fighting ships to seize any foreign vessel which did not strike her flag as a salute.

In 1635 the French and the Dutch boldly announced they would not give the salute in future. They changed their minds when an English fleet was sent after them. In 1636 a Dutch squadron struck their ensigns as a token of respect when meeting an English squadron at sea, but in 1652 Admiral Tromp failed to salute and so the First Dutch War began.

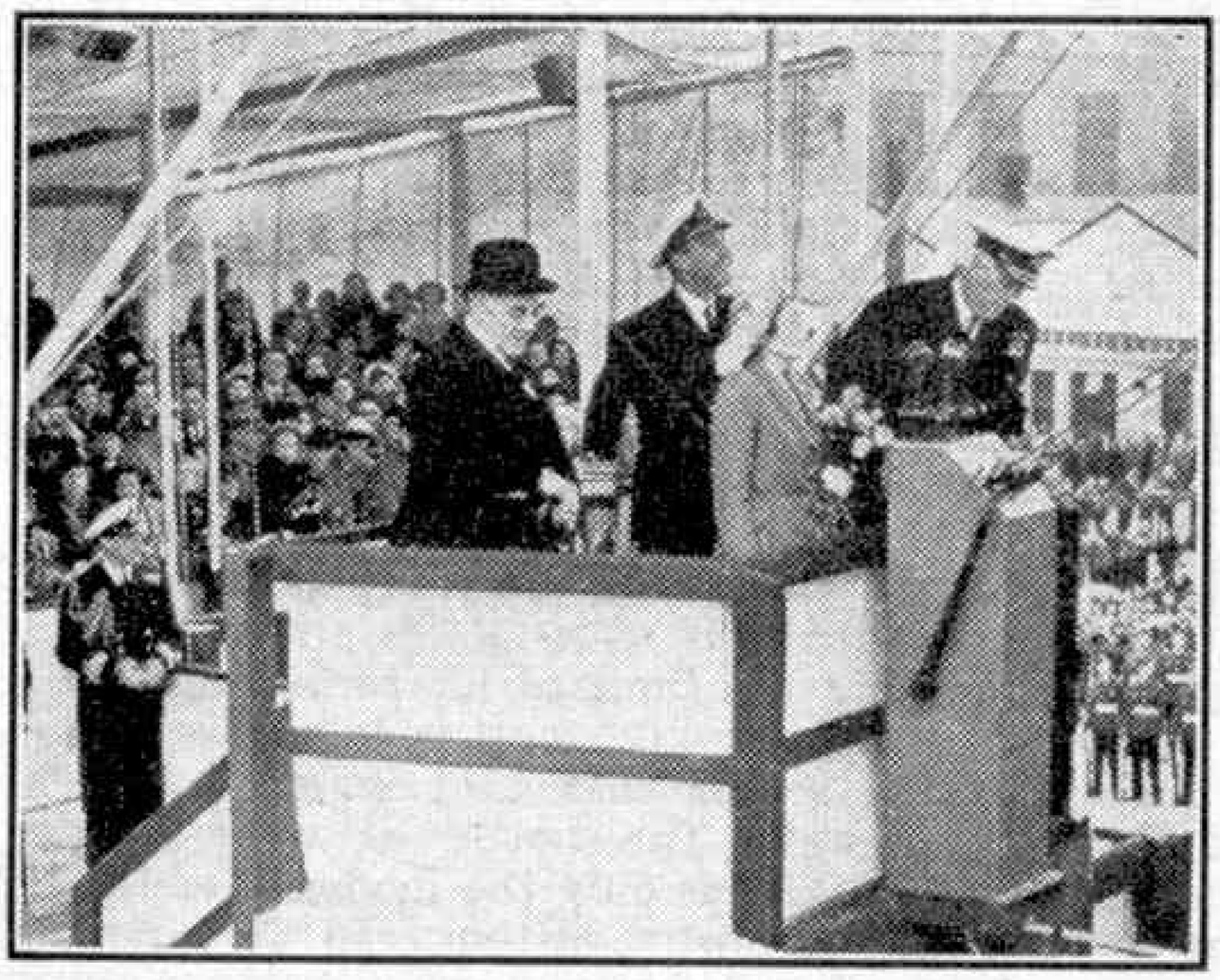
Nowadays British warships have strict instructions not to strike their ensigns before a foreign fighting ship. The flag must not be lowered unless the foreign ship either lowers her ensign first, or is seen to be lowering it as a courtesy.

Merchant ships always lower their ensigns or "dip" them, as it is called, to a man-of-war. They also dip their flags as



The Cunard-White Star "Caronia" dresses ship, a custom common to the Royal Navy and the Merchant Service.

a matter of company routine. The general rule is that the senior captain, known as the commodore, is saluted by all other ships of the same company when meeting at sea. They are the first to dip their ensigns. The commodore acknowledges the salute by dipping the ensign of his own ship in return. In some companies the rule is extended right down the seniority list, each captain being first saluted by his junior. In others, ships commanded by R.N.R. officers always take seniority, their Blue Ensign being first saluted by a Red Ensign. If both ships of the company are wearing the Blue Ensign they must dip them simultaneously, and the same rule applies if both are Red Ensign ships.



A launching party at the yard of Harland and Wolff Ltd., Belfast. The lever that releases the ship as she is christened is about to be pulled.

Gun salutes play an important part in sea ceremonial. They are not only a mark of respect for rank, heralding the approach of Royalty or some other distinguished person, but also a courtesy between nations. The Admiralty has laid down very precise rules as to when gun salutes shall be given, specifying the number of rounds to be fired on each occasion. Should a foreign warship commanded by a flag officer be encountered at sea, the salute will be fired according to his rank, and the same courtesy is extended to British flag officers. In all cases the salutes are returned, gun for gun.

There is an agreed international scale of gun salutes to avoid confusion in the number fired. All large warships are fitted with small saluting guns, blank charges being employed.

The maximum salute fired in honour of a foreign flag during visits by British warships is 21 guns. Similarly, foreign men-of-war fire 21 guns to the British flag in our waters. Normally, such salutes are immediately returned by a British warship in the same harbour. But in the absence of a warship it is fired by a battery on shore.

There has actually been one case where a salute to the British flag was returned after an interval of twelve months, a record. It happened that an American warship had called at St. John, New Brunswick, firing the usual salute. But there was no acknowledgment, as no British man-of-war was there at the time,

and the people on shore did not possess a battery. When this eventually reached the ears of the Admiralty, a year later, a cruiser was ordered from Bermuda to visit St. John and fire the belated 21-gun reply.

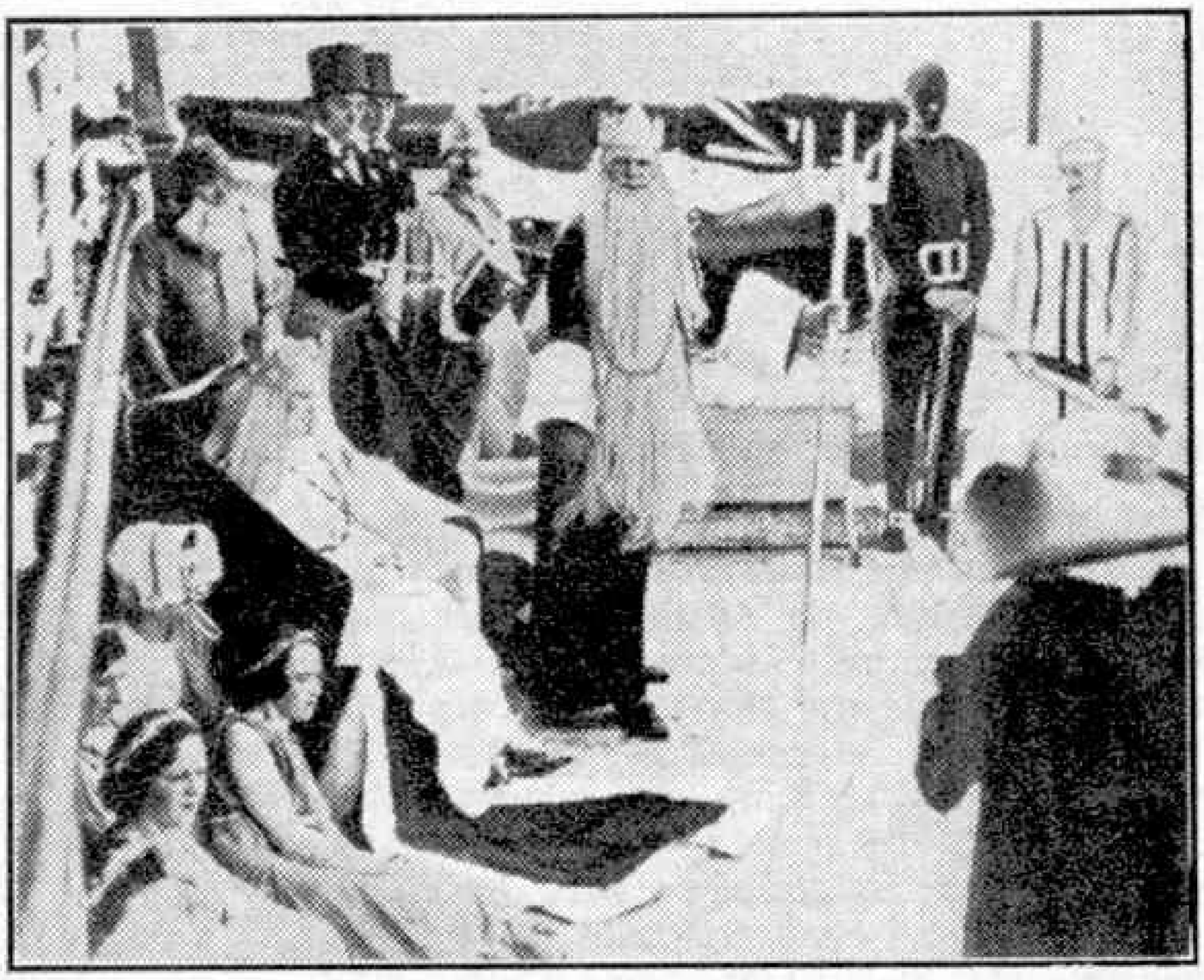
Another ancient ceremonial, observed in both the Royal Navy and the Merchant Service, is that of "Crossing the Line," in which greenhorns who have never crossed the Equator are hauled up before King Neptune and his Court and subjected to playful indignities. In former days the ceremony led to violent horseplay, in the course of which old grudges were paid off. More than one bruised victim, indeed, sought redress in the law courts once he got ashore. It was then agreed that anyone unwilling to go through the ceremony could be excused on appealing to the captain.

Although the ceremony varies in different ships, the main features are the same. Old hands dress up in motley garb to represent Neptune and his minions. One acts as counsel for the defence, attired in a grotesque birds' nest of a wig. His task is to plead clemency for the victims, although his arguments are generally overruled. Having answered questions about their sea experience, and been duly sentenced, the greenhorns are first dosed with mysterious pills. Next they are shaved by Neptune's personal barber, a clumsy workman who puts more lather in the mouth than round it. The final step is to capsize the chair, shooting the victim into an improvised bath. After emerging, he is awarded a certificate to ensure free passage across the Line in future.

Less boisterous is the ceremony of "Wedding the Sea," the symbolic marriage of shore and ocean. This was practised at Venice for centuries, the Doge wedding his city to the Adriatic by dropping a ring overboard from his decorated barge, which was filled with ambassadors and the nobility.

The ceremony has been revived in modern times, notably as a civic event at seaports. But when this was done at Liverpool the wedding had an amusing sequel. The ring employed was fashioned in bronze and weighed 10 lb. It was duly cast into the Mersey by the leader of the City Council, attended by local notabilities. A couple of days later, however, it was fished up out of the mud in dredging operations. It was therefore brought back ashore and kept as a museum piece.

Mention of this ceremony recalls the picturesque procession still carried out in a number of harbours by the civic chiefs who claim to be "Admirals of the Port." This title goes back for many centuries, when maritime affairs were settled by local courts. Today, although the duties have either disappeared entirely, or are now confined to minor matters, Lord Mayors and Mayors still cling to the ancient title. They get the chance of a sea trip when beating the bounds of their city, proceeding to the limits of their harbour.



King Neptune and his Court during a crossing of the Line ceremony on board a Cunard liner.

At Cork they have an interesting ceremony known as "Throwing the Dart." The dart is really a steel javelin. It is taken on board a vessel that conveys the Mayor and Corporation as far seaward as an imaginary line between Poor Head and Cork Head. Standing in the bow, the Mayor then aims the dart into the sea and throws it with all his strength, thus marking the limit of his jurisdiction.

But perhaps the most popular ceremonial of the sea is that held when a ship is christened. The bottle of wine broken on the stem is only the modern version of a very ancient custom. In its original form, the christening wine was sprinkled on the deck at the four main points of the compass. Even (*Continued on page 238*)

Dunfermline's New Locomotive Depot

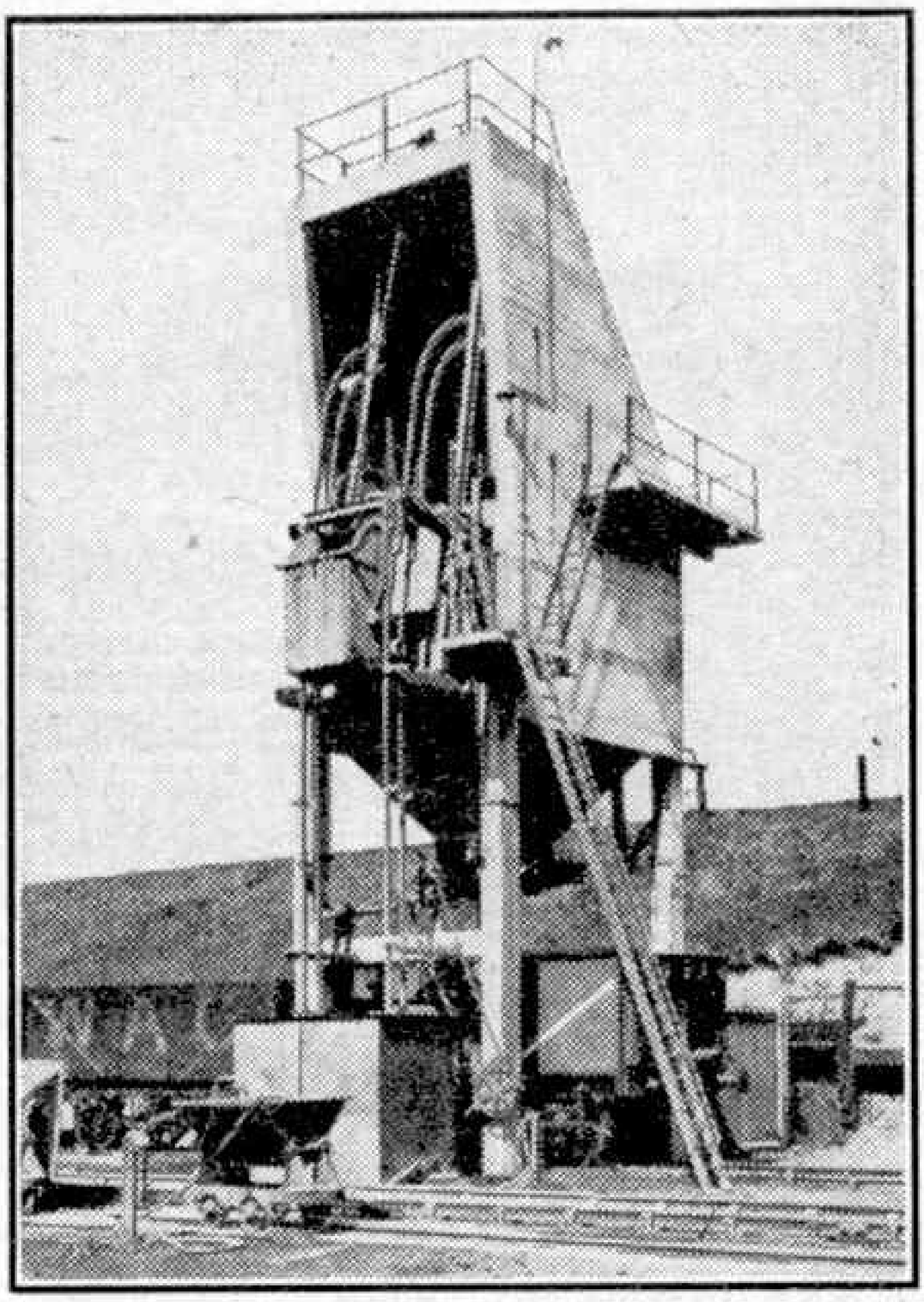
AN engine shed is an interesting place. There is always something going on there, at least in the larger and more important centres, for the railway service never stops and engines are coming and going all the time.

A visit to a typical shed will show some engines being prepared for duty; in the later stages of this preparation they seem eager to be off, for their safety valves open intermittently while their crews oil round, fill lamps and sandboxes, test injectors, brakes and water gauges, check coal and water, and generally make ready for the road. Under the watchful eye of the steam raiser other engines are just building up pressure, with a jolly rumbling sound inside their boilers. On other roads perhaps there will be engines under repair, undergoing boiler washing and so on.

It is outside the shed as a rule that the more spectacular operations found so interesting by the visitor take place. Here there are engines being turned on the turntable and taking on coal and water, and we see too the arduous and uncomfortable job of fire-dropping or fire-cleaning being carried out.

Modern practice aims at making the best possible use of engines once they are in steam. So a great deal has been done in recent times not only to speed up these servicing operations where possible by mechanical aids, but also to facilitate engine movements between operations.

One such scheme of modernising, recently carried out by British Railways at Dunfermline (Scottish Region), makes the motive power depot there one of the most up to date in the country. The old manual methods of coaling engines and of disposing of ash from fire grates, ash pans and smoke-boxes have been done away with. The modern coaling plant now installed is operated electrically, as also is the ash elevator, which loads the accumulated ash into wagons for disposal. Another new piece of equipment is the 70 ft. articulated vacuum tractor turntable on which an engine, if suitably fitted, literally turns itself. At the same time the lighting in the depot has been improved and power drive is now provided for machine tools.

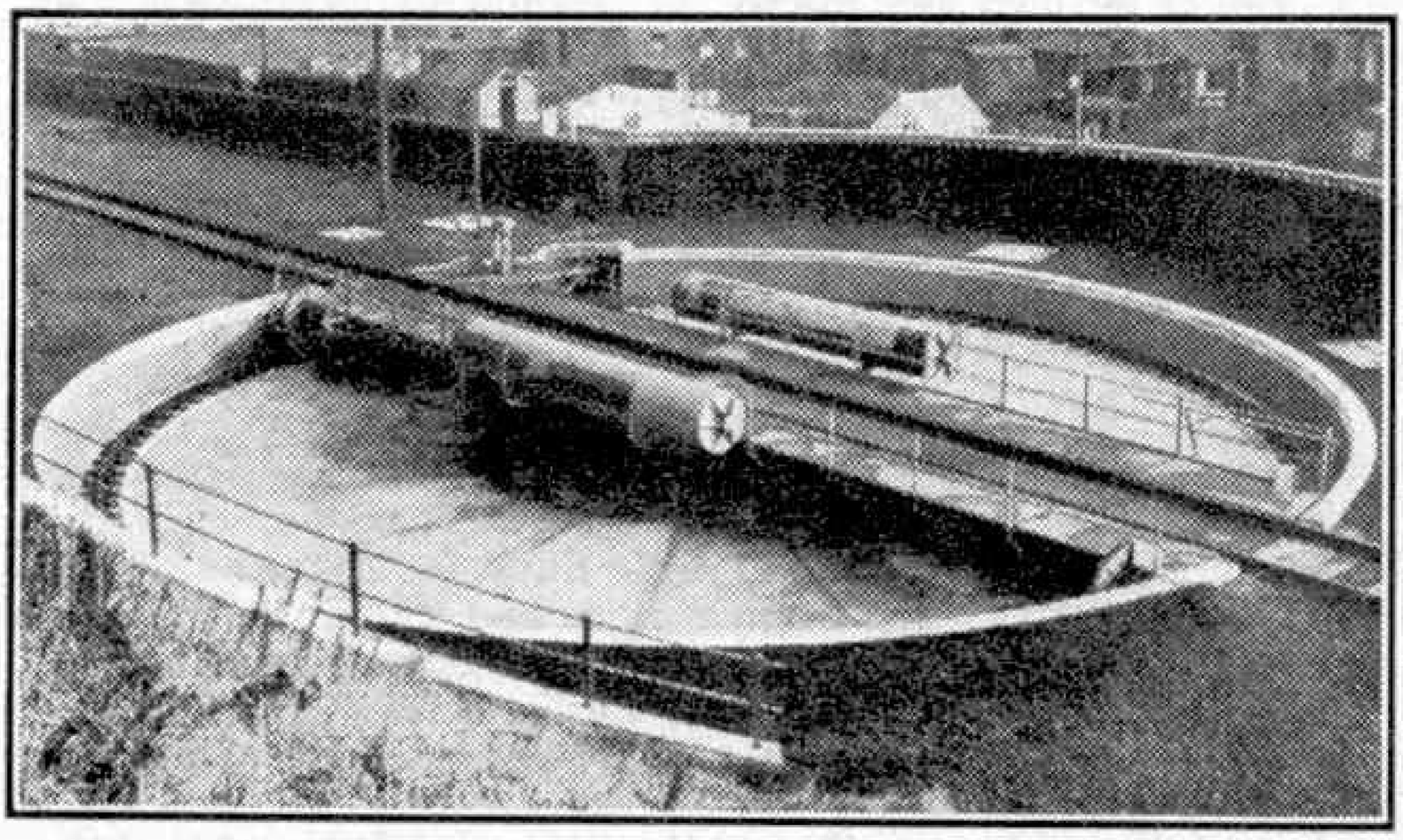


The ash plant at Dunfermline Motive Power Depot, showing the overhead bunker, the skip hoist and, in the foreground, one of the small ash tubs.

The new coaling plant has two overhead bunkers, each holding 100 tons. One supplies coal for local passenger and express freight engines, while the other contains coal for shunting and local trip engines. Coal wagons are run one at a time at ground level on to the table of a wagon tippler. Then the coal is first tipped into a steel-lined pit and from there, 25 cwt. at a time, it is raised to the bunkers by means of a skip hoist. The coal then gravitates from the bunkers to an electrically operated jigger-feeder, one for each bunker, which discharges into the tenders of locomotives standing beneath.

Ash disposal equipment includes a special pit road where engines stand while their clinker and ashes are raked or shovelled into steel tubs running on rails in the pit, or alongside it, according to the type of fire-box being dealt with. The loaded tubs are pushed towards a chute from which an electrically operated skip hoists them up to the bunker of the ash plant proper, which stands astride the siding and so loads the ash wagons by gravity.

The new turntable is powered by a vacuum tractor that makes use of the vacuum created by the locomotive brake ejector. Manual operating gear also is provided.



This view of the new 70 ft. vacuum-operated turntable shows the pit details and the vacuum cylinders. The illustrations on this page are from British Railways Official Photographs.

Across America by "Greyhound" Bus

1. From 'Frisco to Arizona

By Bernard Llewellyn

ONE of the first things I did when I stepped ashore in San Francisco was to get myself one of those transcontinental bus tickets I had heard so much about. I did not envy shipmates who had booked railway sleepers, which would get them to the East Coast in under four days. I wanted to see America as I crossed it, and friends had told me there was no better or cheaper way of doing that than by going by "Greyhound."

So early one May morning, armed with a bulky ticket from which a perforated section was torn at the end of every stage, I climbed aboard a gleaming silver grey coach that had a sprightly greyhound painted on the side. Inside, the well-upholstered seats were fitted with a control that allowed the passenger to adjust the angle. One could relax to sleep, or sit up and take notice, as one pleased.

Between San Francisco and Los Angeles stretch 400 miles of the famous Highway 101, and our "Greyhound," which changed drivers during a late lunch hour, covered the distance in less than 12 hours. I soon got into the habits of all coach travellers, who swallow hamburgers and hot coffee at any hour of the day or night.

Two of the silver grey coaches of the "Greyhound" line are seen in the illustration at the head of this page, having their tanks filled at a typical halt on their journey across the United States from the Pacific coast to the Atlantic. The illustrations to these articles are from photographs by the author.

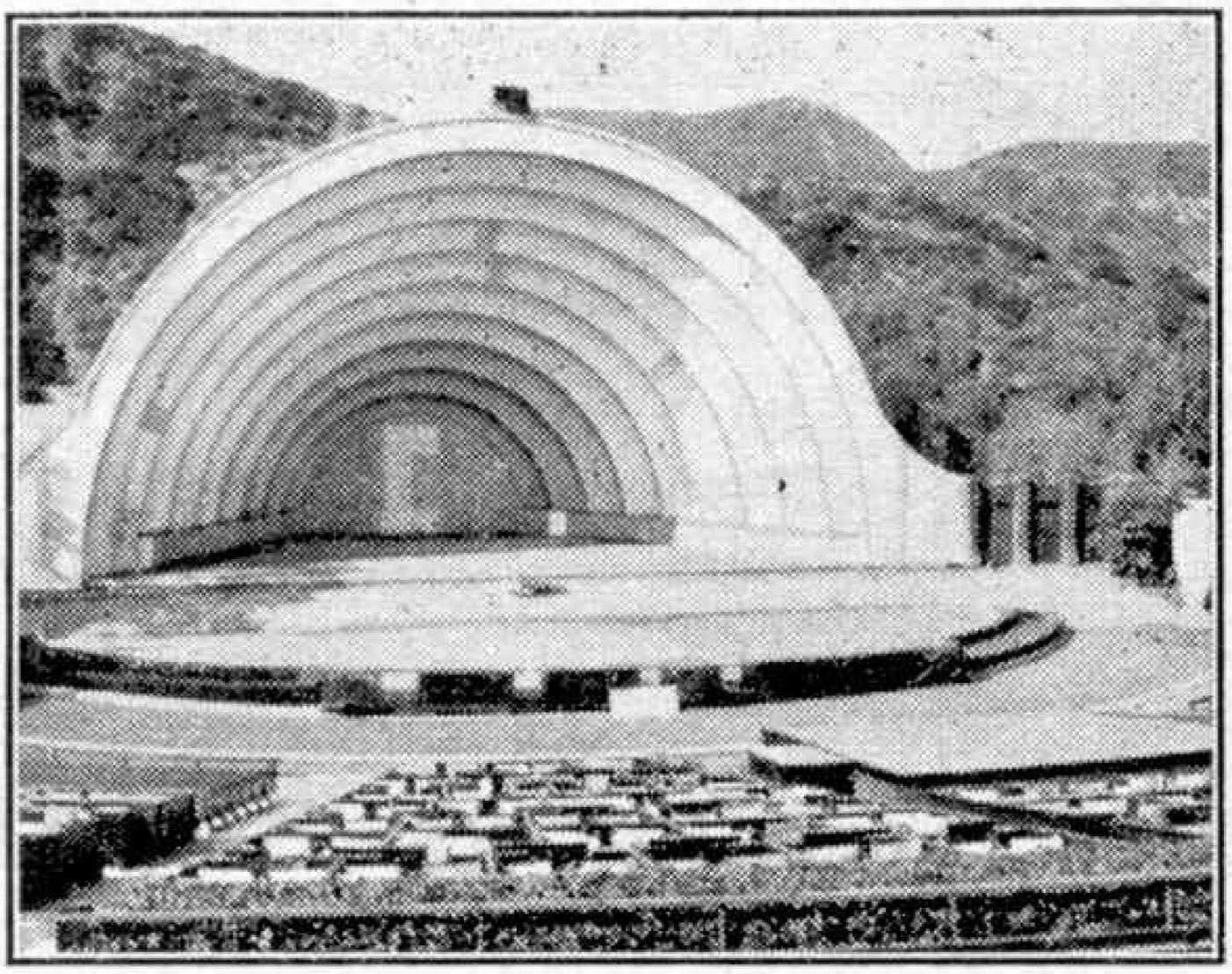
By late afternoon I could see the oily swell of the Pacific as we sped past the old mission town of Santa Barbara, heading for Los Angeles, the "City of the Angels." By the time we reached Hollywood it was dark. I caught a glimpse of the Warner Brothers' studios, and then we were part of the dazzling lights of Sunset Boulevard and moving on into the heart of Los Angeles, where one person in every two has a car.

At the bus station I alighted, a little cramped, picked up my suitcase and set off to find my friends. Yet many of the people who had travelled with me from 'Frisco were already enquiring about the next bus eastwards, or over the border into Mexico. They were not sightseers, but travelling this way to save money. They would be very weary when they reached their destinations.

I stayed four days in Los Angeles. I visited film studios and toured Hollywood, and an enthusiastic guide even showed me the golf course where Bing Crosby and Bob Hope played an occasional round. In Griffith Park I saw the magnificent observatory built on the hills around the city, where the telescope commands a brilliant arc of sky and

where popular lectures are given on most evenings in the planetarium. From here on the last evening of my stay I watched the lights springing up in Los Angeles and suburban Hollywood—a carpet of twinkling bulbs stretching to the sea.

The next stage was from Los Angeles to Las Vegas, in Nevada, and lay among barren hills, cactus trees, brown shrubs and the sand of the Mojave Desert, which contrasted strikingly with the fertility of the Californian coast. Numerous petrol stations bordered the road, and there were cabins which I fancied might be inhabited by mining prospectors, for Nevada is the silver state.



The stage of the famous Hollywood Bowl, one of the largest natural amphitheatres in the world.

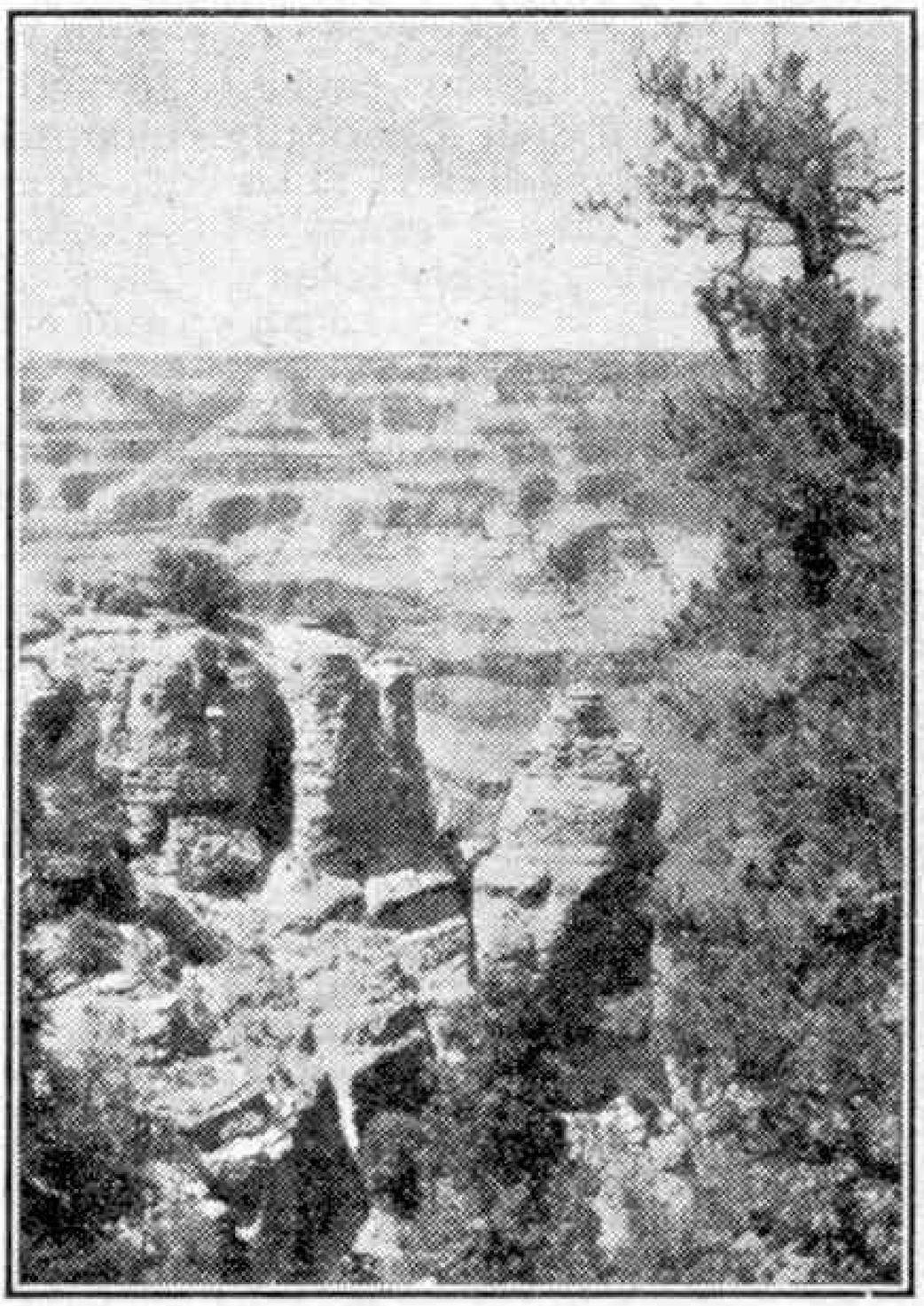
I had come this way to pay a visit to Boulder Dam, the engineering marvel that has harnessed the power of one of the world's most treacherous rivers. Crossing the desert I had seen the tall steel pylons carrying the copper and aluminium lines that have brought power in millions of watts to the south western United States; now I was to see the Dam itself among the rugged hills that overlook the gorge of the Colorado River.

The road ran across the top of the Dam, but before it got there we had a view of Lake Mead, the vast man-made stretch of water 115 miles long at the back of the Dam. According to my guide book, there was enough of the Colorado River in this lake to have given 5,000 gallons to everybody in the world.

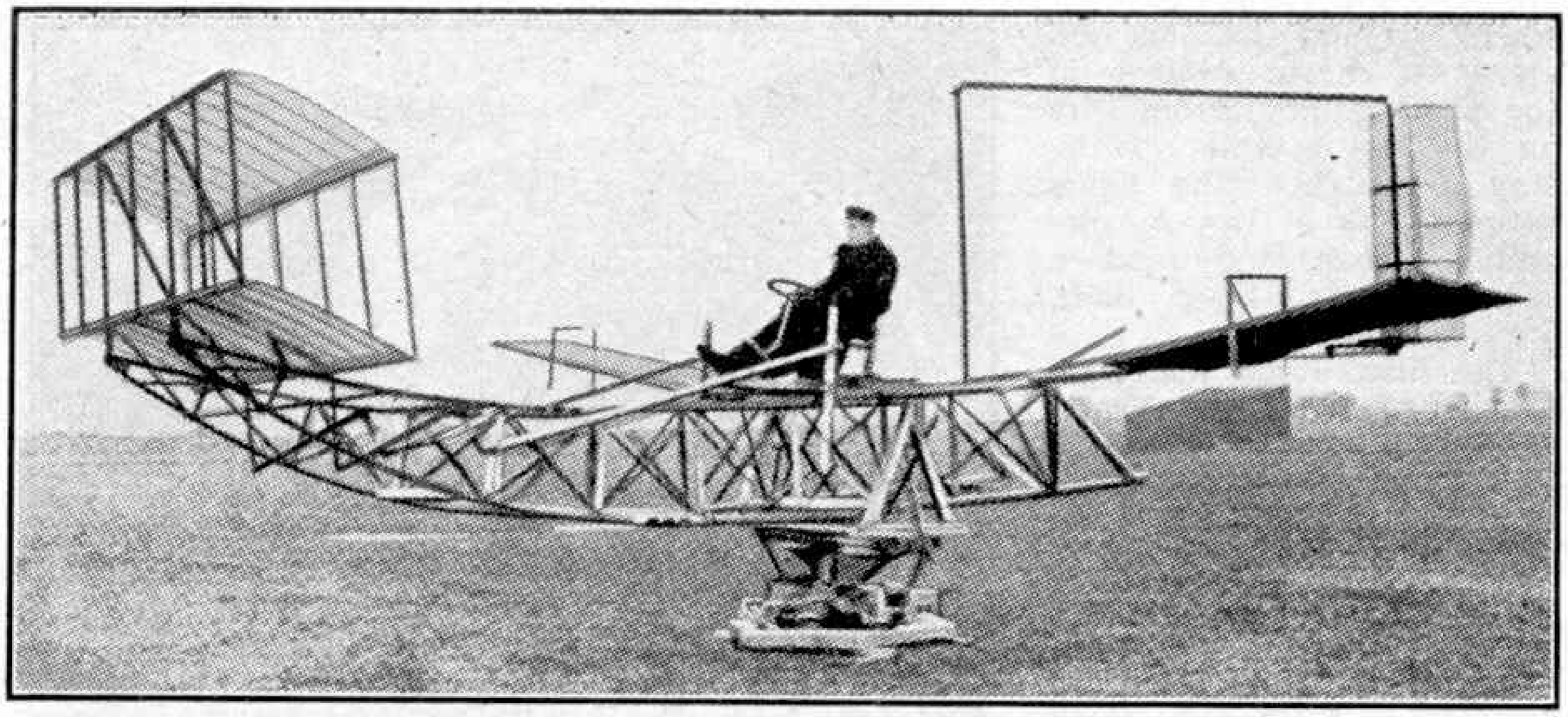
From the roadway over the Dam a lift carried us down to the mysteries below, and for the next hour I was overwhelmed by masses of figures and superlative epithets which the guide flung at us. We must have explored a great part of the two miles of shafts and galleries inside the Dam. The generator units in the power house were enormous, as were the tunnels through which the Colorado had been diverted while Boulder Dam was being built.

I doubt if any project of comparable size has been constructed so rapidly. Work began in May 1931, and 18 months later the wild and supposedly untameable river had been moved from its channel. Six months after that the first concrete was poured, and by the time the last bucket was emptied there was enough concrete in the Dam to have made a pavement five feet wide from the North Pole to the South. By June 1936 the river was under complete control.

Boulder City, where I had lunch after my visit to the Dam, shows what irrigation can do to a desert. (*Continued on page 238*)



A view from the south rim of Grand Canyon, described in the second of these articles, to appear in next month's "M.M."



The Sanders "Teacher" of 1910. Photograph loaned by courtesy of "Flight."

Flying at Ground Level

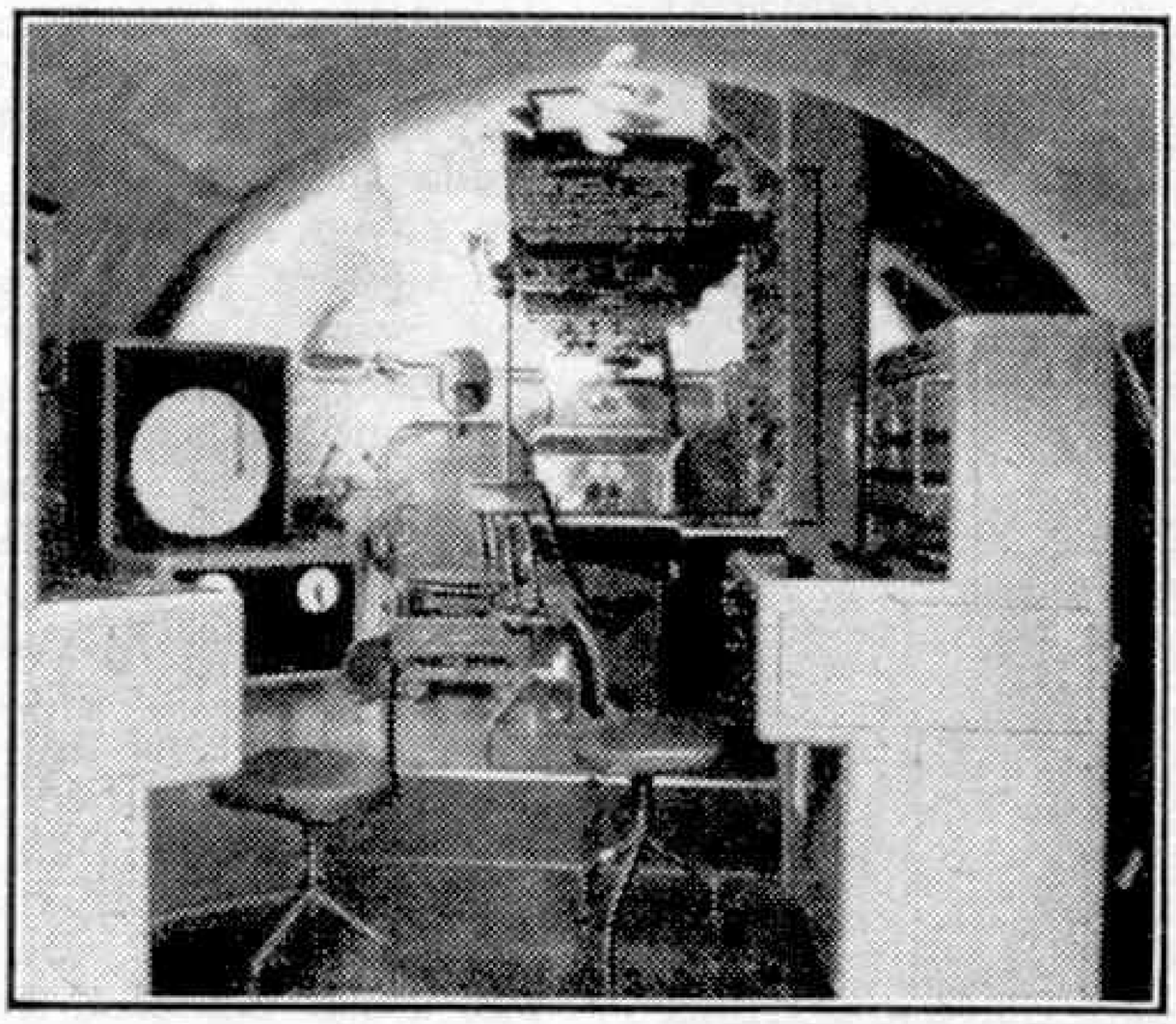
by John W. R. Taylor

THERE is a great deal of difference between flying an aeroplane in perfect conditions and flying it "on instruments" at night or in bad weather. So I felt a little nervous as I took my seat in the cockpit of the Redifon TC–800 trainer, shut the cabin door, glanced at the rows of dials in front of me and realised that I could see little else, as the windscreen and side windows were made of frosted glass.

Even the voice of the instructor from over my shoulder seemed small consolation, and I felt very much on my own when his remarks were momentarily drowned by noise from the "engine" in front of me. "O.K.," he said, "she's all yours. Do what you like, but don't spin her into the deck or land upside down, or it will take me half an hour to unscramble you." With those words of comfort ringing in my ears, I opened the throttle and, eyes glued on the instruments, watched my speed build up until I was able to ease back the control column gently.

I was airborne.

Actually, of course, I was not airborne, as the Redifon TC–800 is a trainer without wings, wheels, tail or engine. In fact it is little more than a perfectly equipped cockpit, surrounded by miles of wire, hundreds of valves, scores of switches and electronic jiggery-pokery, plus a loudspeaker which gives a healthy replica of the roar of an aero engine. Its correct technical name is a "flight simulator," and basically it is an extremely complicated and quick calculating machine, able to work out an aircraft's exact position in space from data fed into it by movements of the controls. It then shows the result on appropriate

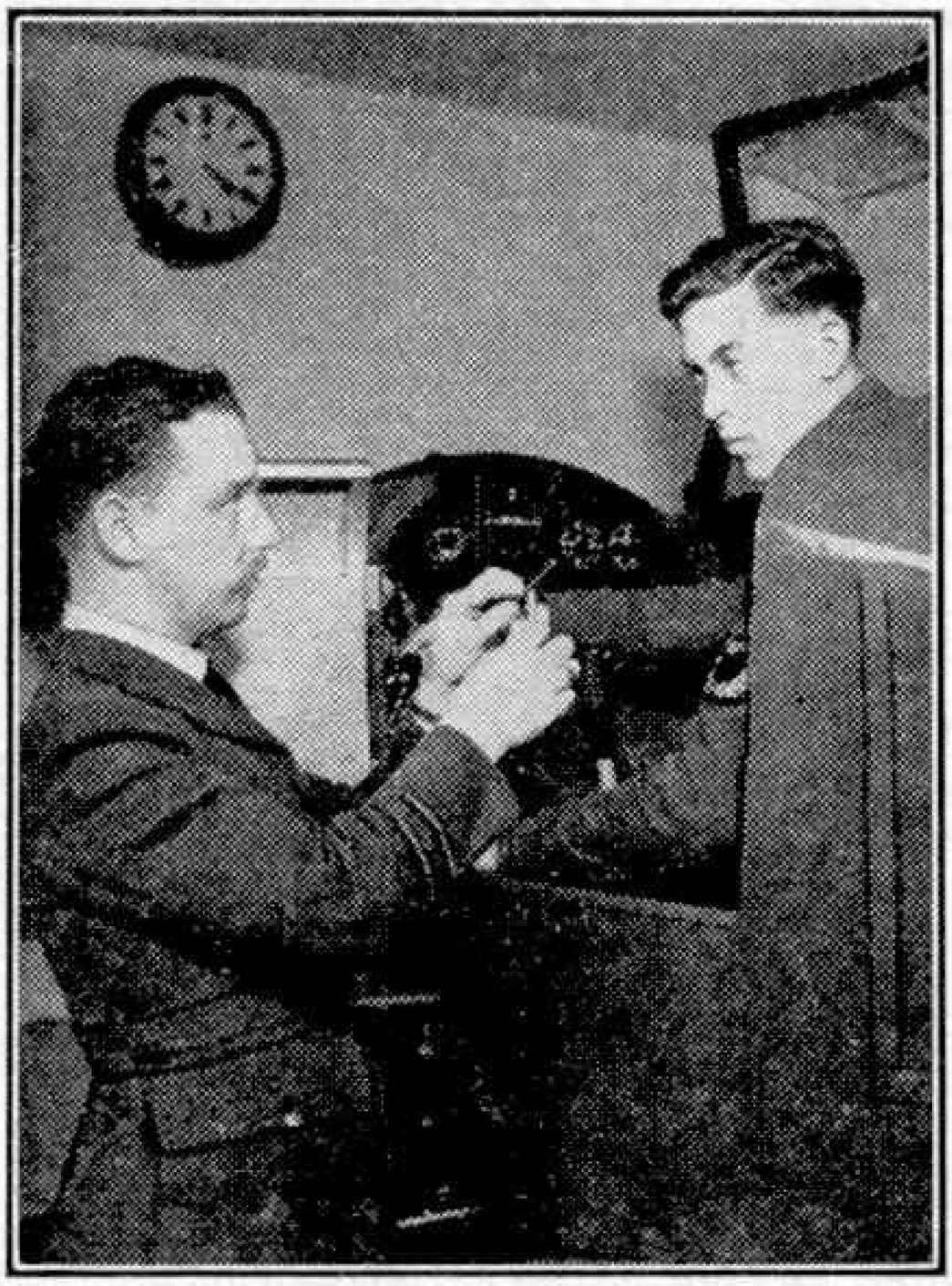


Redifon Flight Simulator. In the forward part are the Captain, Co-pilot and Flight Engineer's positions, with the Chief and Assistant Instructors' position in the foreground of the picture.

instruments on the trainer's dashboard, just as it would be shown in the cockpit of a real aeroplane.

The idea is to give pupil pilots training in instrument and blind flying without the danger or expense of sending them up in an aircraft. In any case, after a few minutes in the TC–800, the average pupil becomes so absorbed in watching the instruments and moving his controls to keep the trainer flying on course that he quite forgets he is still on the ground.

This might seem hard to believe until one has seen the TC–800; but the electronic engineers have done a really incredible job. The slightest movement of any engine or flying control is reflected instantly on each instrument. For example, if the control column is pulled back, the artificial horizon indicates that the trainer is climbing, engine revolutions drop, temperature and pressure gauges gradually alter their readings, airspeed falls, and so on. The trainer itself remains on an even keel, but its controls and instruments record faithfully the effects of loops, spins, rolls and other aerobatics *exactly* as they would be shown in the air.



Link Trainer instructor explaining the artificial horizon position for level flight. Photograph by courtesy of Air Ministry, London.

Like all good trainers, the TC–800 is deliberately made slightly unstable, so that it has to be "flown" all the time. In other words the pupil cannot set it flying straight and level and then sit back with his feet up. Even if he could, the instructor could soon make things unpleasant, as he sits just outside, in radio communication with the pupil, and can see inside the cockpit through a window at the back.

The instructor can, in fact, introduce almost any emergency condition that the aircraft might experience *en route*, such as wing or propeller icing, instrument and radio failure, the effect of crosswinds, or even a complete engine breakdown. He can thus test his unfortunate pupil's reactions in circumstances he would not dare to create in a real training aircraft, knowing that, even if the outcome were a grand-slam crash, it would involve only half an hour's work unscrambling the instruments before the TC–800 would be ready for its next "take-off," as good as new. The result could hardly be more realistic and saves up to 60 per cent. in flying training time.

The Redifon TC–800 is a super-complex, jet-age affair, able to "fly" up to 700 m.p.h. But the idea of a non-flying trainer is by no means new, for a British company produced a stick-and-string contraption named the Sanders "Teacher" as long ago as 1910. A description, published in *"Flight"* at the time, commented that "even the most apt pupil is certain to find himself in difficulties at some time or other, and owing to lack of skill the machine is necessarily sacrificed to save his life. The invention, therefore, of a device which will enable the novice to obtain a clear conception of the workings of the controls of an aeroplane, and of the conditions existent in the air, without any risk personally or otherwise, is to be welcomed without a doubt.

"The Sanders 'Teacher' so closely adheres to the construction of the actual aeroplane that the pupil in learning to control it is simultaneously learning the control of the machine he wishes to pilot. The balance of the 'Teacher' is so arranged that conditions are practically the same as if the pupil were in the air. The varying force of the wind has effect in almost identical manner as on a working aeroplane, while the niceties of lateral and longitudinal stability are not carried to an extreme."

That, remember, was written over 40 years ago, yet it could just as well be a description of the TC–800 of to-day.

Even now, straightforward basic flying

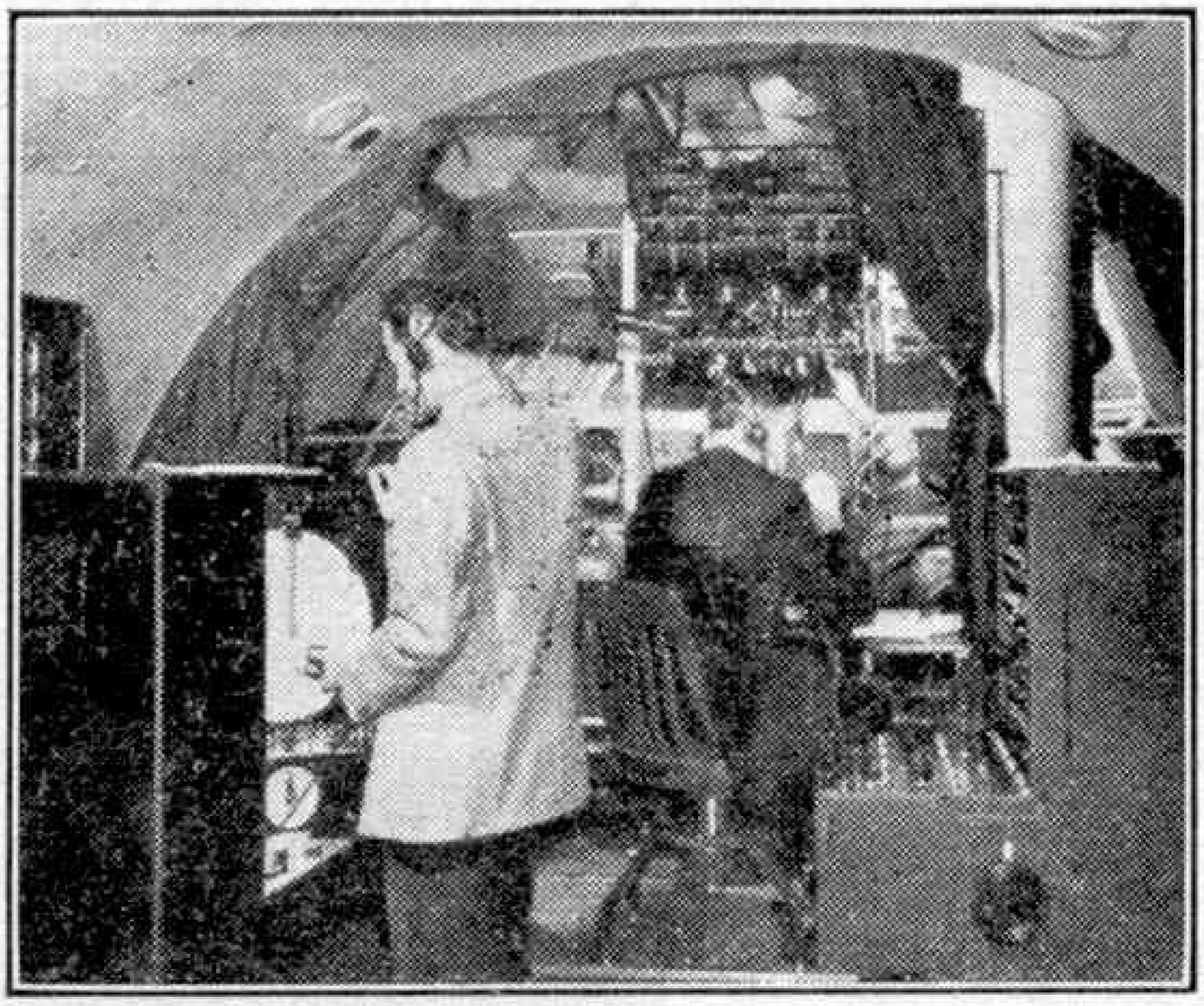
trainers—modern counterparts of the Sanders "Teacher"—are in world-wide use. Best known is the Link trainer, which is used by the Royal Air Force and will be familiar to most readers who are members of the Air Training Corps. The Primary version of this is much less complex than the TC–800, with fewer than 10 instruments and controls; but a new development of the American Link, designed in England by Air Trainers Ltd., is able to give complete ground training in the use of advanced flying aids such as the Instrument Landing System and Standard Beam Approach, used for bad weather landings at airports throughout the world. As in the Redifon trainers, the instructor is able to reproduce flight emergencies, and the pupil's course is plotted automatically on a chart so that he can discuss it with his instructor after "landing."

To add to the realism, all Link-type trainers are fitted with bellows mechanism which enables them to bank, pitch and turn when the flying controls are moved, giving the pupil a physical sense of flying as well as a mental picture through his instruments.

The trainers and flight simulators mentioned so far give practice in everything from basic flying — handling the standard controls of an aeroplane—to general instruction in blind flying and complex radio and radar safety aids. But the idea has been carried much further by American Dr. Ralph Dehmel, who designed the original version of the Redifon TC–800. In co-operation with the Curtiss-Wright company, he has produced an even more incredible flight simulator to train Pan American World Airways' aircrew to fly the Boeing "Stratocruiser" air liner.

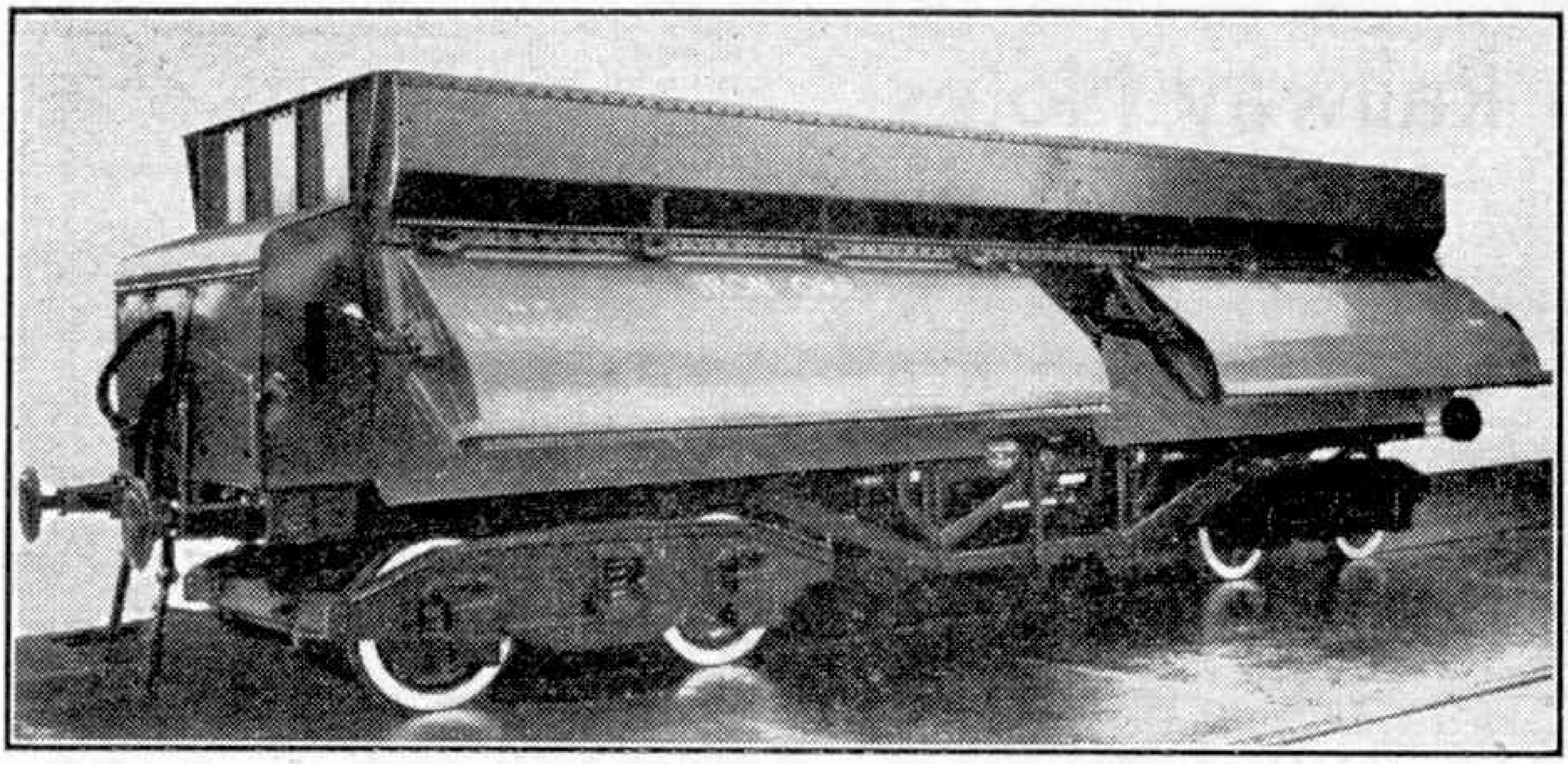
As can be seen in the illustration on this page, the interior of the Dehmel trainer is identical in every respect with the flight deck of the air liner, and is in fact built up from "Stratocruiser" components supplied by Boeing. It works in the same way as the Redifon TC–800, but is much more complex, as it has to reproduce every flight characteristic of the giant 70-ton, four-engined air liner, even to the screech of tyres on the runway as it "lands."

This high standard of accuracy is essential, as Pan American use it not only to train new pilots but to give experienced "Stratocruiser" captains the periodical refresher courses required for renewal of their airline pilots' licences. Such hard-boiled airmen are not easily fooled, so Pan American instructors are careful to give them no time to relax. After passing through proper briefing and meteorological offices built into the trainer unit, the pilots are sometimes made to taxi out for take-off before they are properly settled; then, perhaps, confronted by an engine failure during take-off, sudden headwinds, jammed landing flaps and so on. They soon forget the make-believe!



Instructor supervising a simulated flight by a Pan American World Airways crew, in the Curtiss Wright Dehmel Electronic Flight Simulator. Photograph by courtesy of Pan American World Airways.

Before Pan American had their simulator they gave their crews about 21 hrs. flying training in a "Stratocruiser." Now training is divided into 35 hrs. in the Dehmel simulator and eight in the air. Training expenses are down by nearly half, as it costs about £300 an hour to fly a "Stratocruiser" and only £30 an hour to operate the simulator. As a result, although the "Stratocruiser" simulator cost about £125,000, it paid for itself within 18 months. Now B.O.A.C. have followed Pan American's example, by having one built for them in England by Redifon. It will be followed by a "Comet" trainer on the same lines, to speed instruction of the Corporation's captains in the art of flying the world's first jet air liner.



B.R. Wagons with Air-operated Doors

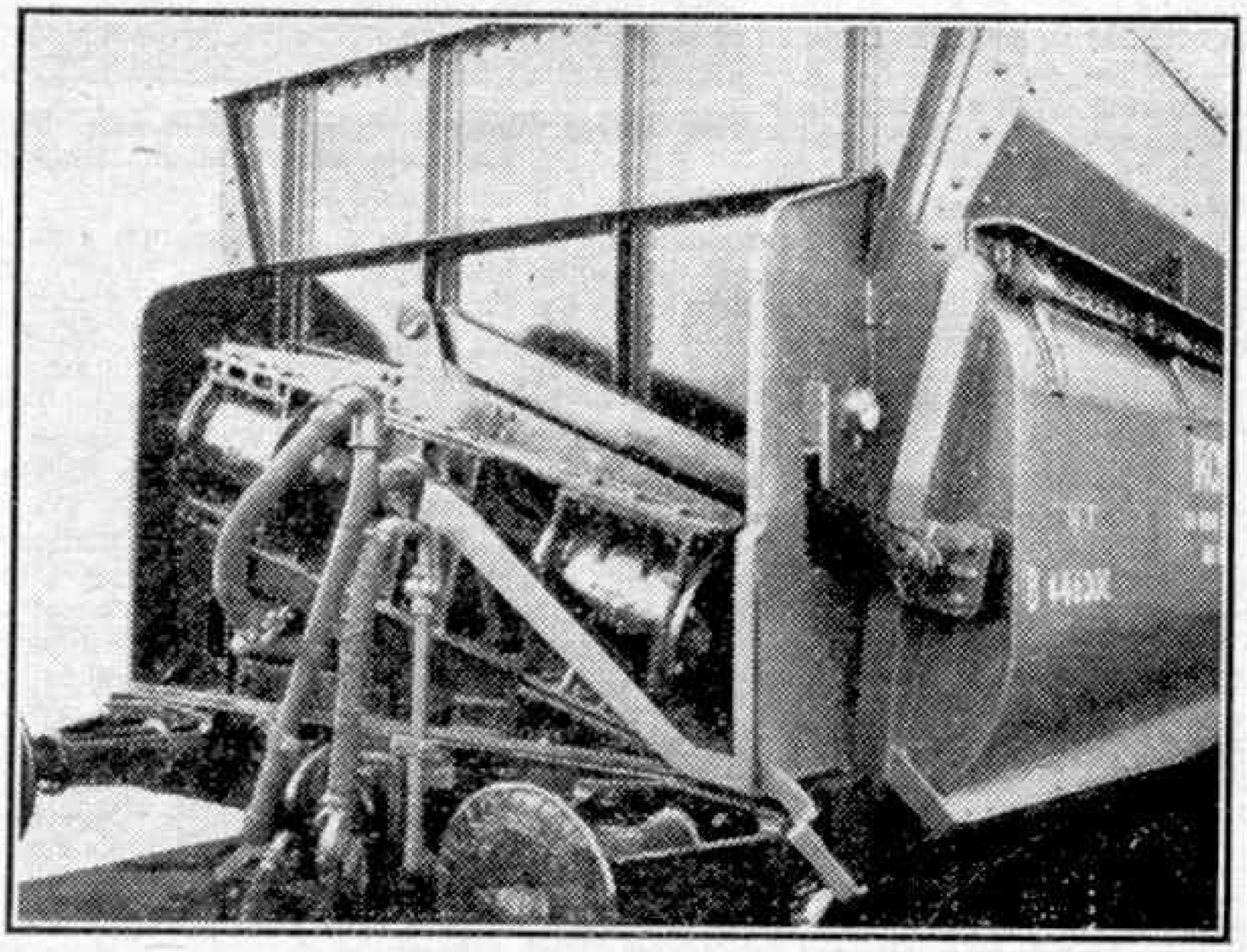
BRITISH RAILWAYS have recently introduced side-discharging wagons, of the type shown in the illustrations on this page, to meet the special requirements of iron ore traffic between Tyne Dock and Consett in the North Eastern Region. These bogie wagons, 30 of which are being built at Shildon, are each of 56 tons capacity and are the largest of their kind constructed for service in this country.

As simultaneous discharge at Consett of the load of each wagon in a train is a special requirement of the traffic, the vehicles are fitted with air-operated doors that can be controlled together throughout the train from the locomotive footplate. They are the first B.R. wagons to be so fitted. As the upper illustration shows, the body consists, as it were, of two separate compartments. The "floor" of each compartment slopes steeply outward from the longitudinal centre line, so that when the suspended side doors are swung open the load is quickly disposed of. Both riveting and welding have been applied in the construction of the body, for which special steel has been used for the sides, ends, doors and hopper plates. Special reinforcement has been applied to the bottom edge of the doors to prevent distortion.

A special problem was the provision of suitable gear for the operation of the side doors, there being no standard equipment in existence of the kind required. So the whole of the operating and control mechanism has been developed by British Railways. Each wagon carries four sets of gear, one at each end, with the other two in the central space between the sloping inner ends of the hopper compartments.

One end set is shown without its casing in our lower picture and consists of two air cylinders mounted on an inclined base plate. One cylinder has a diameter of 14 in. and is used to close the doors. The other has a diameter of 16 in. and its function is to open the doors. The piston rods from these cylinders are connected to a system of levers which push the doors open and pull them shut. A manually-operated lock prevents power operation of the doors when the wagons are on the run.

Each wagon has four air reservoirs and the vehicles are piped for compressed air supplied from the locomotive for door operating. On the loaded trip, steam-driven compressors on the engine are worked to charge these reservoirs. When the required pressure has been reached an automatic cut-out operates and pressure in the 14 in. cylinder is sufficient to hold the doors shut. When the train of eight or nine wagons reaches the discharging point the manually-operated locks are released and the power operation of all the doors together is effected by manipulation of a three-way valve in the engine cab.



In the upper picture the air-operated doors are held open. The lower view shows a set of operating gear with the casing removed. British Railways Official Photographs.

Railway Notes

By R. A. H. Weight

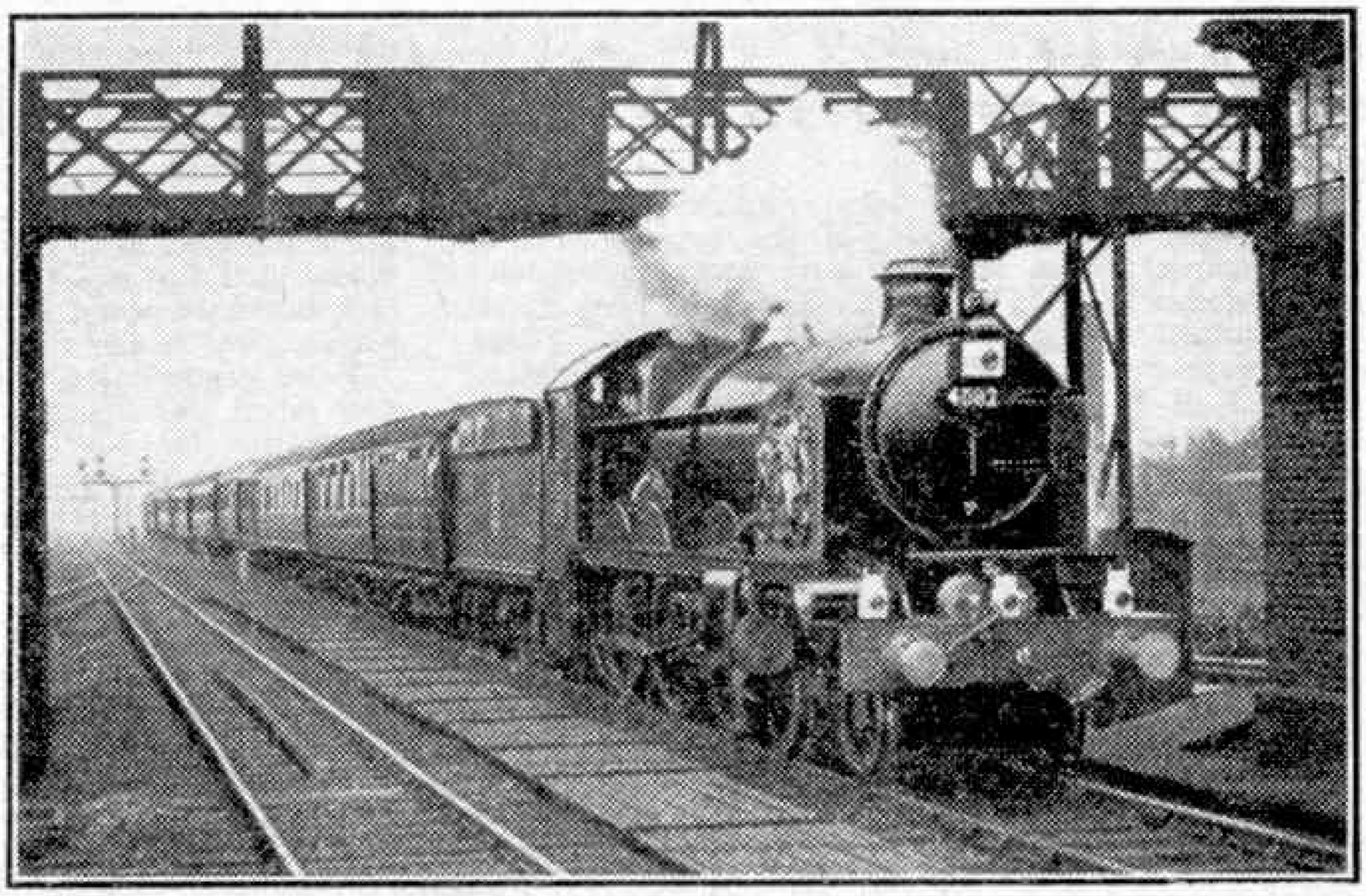
The Royal Funeral Trains

British Railways played their part fittingly when conveying the mortal remains of His late Majesty, King George VI, also members of the Royal Family from Sandringham to London, then a few days later from London to Windsor in February last.

The former L.N.E.R. Royal Train, still finished in varnished teak, was used for both journeys, the formation including a saloon fitted as a funeral car and painted black with white roof.

From Wolferton station in Norfolk, which has quite a distinctive style of architecture and carved timbering, the locomotive for the short journey along the Hunstanton branch to King's Lynn Junction, where reversal is necessary, was the "B2" 4–6–0 "*Ford Castle*." Thenceforward for the non-stop run to King's Cross, via Cambridge and Hitchin, the pioneer standard 4–6–2, No. 70000, "*Britannia*" was in charge. I understand that "B17" 4–6–0 No. 61619, "*Welbeck Abbey*" was stand-by engine at Cambridge.

After the impressive procession through London and following several special trains conveying mourners and guests from many parts of the world, the Funeral Train was hauled by No. 4082, "*Windsor Castle*," as depicted in our illustration. This is actually one of the modern "Castles" No. 7013, formerly "*Bristol Castle*," that has assumed the title and number plates, etc., of the famous 1924-built 4–6–0 which hauled the Funeral Train on the occasion of the passing of H.M. King George V in 1936, because the older engine was in Swindon Works during February last. Royal coats-of-arms on purple facings were carried on each side of the smoke-box during the journey to Windsor; the uppermost of the four headlamps was a special one surmounted by a Royal Crown.



The Royal Funeral Train of His late Majesty King George VI near Southall, en route for Windsor. Photograph by R. E. Vincent.

New Pennsylvania Electric Locomotives

In addition to notable strides in the development of diesel-electric locomotives, which are becoming more usual for main line duty on various railways in the U.S.A., further developments are reported in connection with all-electric traction on sections where the engines obtain current from overhead wires.

For fast freight service so operated on the Pennsylvania Railroad, four remarkable electric locomotives have been placed in service, with traction motors driving all wheels and fitted with dynamic as well as air braking. The air (Westinghouse type) brakes can be applied to the whole train.

Two, built by the Westinghouse Company, employ for the first time on locomotives an ignition rectifier capable of converting by means of large mercury-arc tubes, alternating current as transmitted efficiently over cables into direct current, which can be utilised more readily by motors. Usually elsewhere the whole layout and power unit construction is designed to operate either with alternating or direct current exclusively. The other two locomotives were constructed by the General Electric Company, to develop 5,000 h.p. continuously and up to 10,000 h.p. temporarily whilst accelerating or ascending grades. They are 108 ft. long and weigh 245 American tons.

Southern Tidings

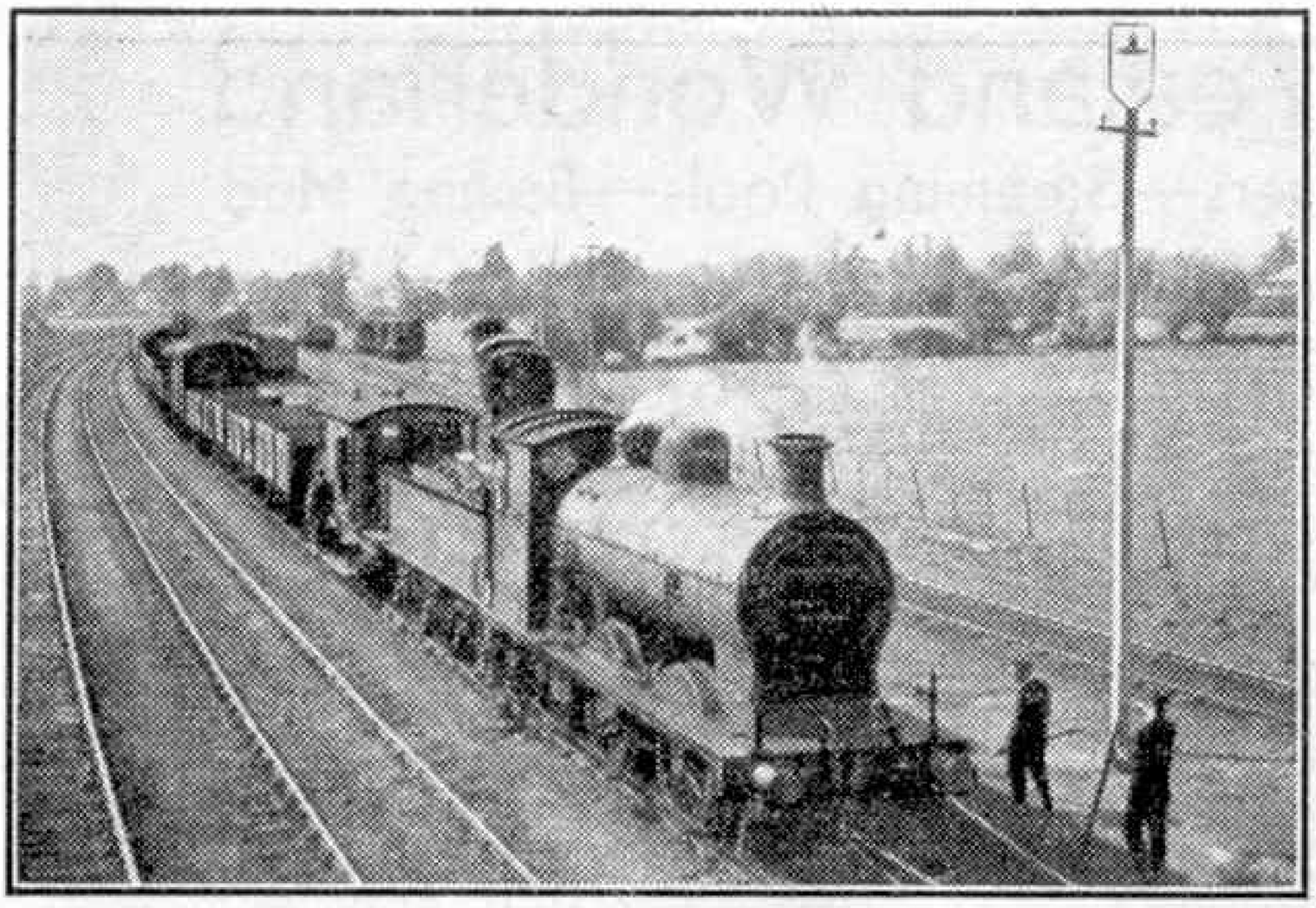
Diesel-electric and electric locomotives are repaired at Brighton Works, where standard 2–6–4Ts continue to be built for service partially on other Regions. They are seen on S.R. Central Division turns while running-in, Nos. 80031-3 being the latest so noted stationed at Brighton. The L.M.R. type 2–6–4Ts which were tried for a time on Devon and Cornwall lines while attached to the 72A, Exeter district, have returned to the Central Division and are working from Three Bridges or Brighton.

Ten "L" Wainwright S.E. and C. 4–4–0s Nos. 31770–9 have been transferred from Kent to Eastleigh for the operation of various Hampshire secondary services in place of Drummond 4–4–0s of the "D15," "L12" and "S11" classes which are disappearing rapidly, though some of the older rebuilt "Greyhounds" of class "T9" remain at work, a few having received recent overhaul. There are no 4–4–0s of former L.B.S.C.R. type left as the last "B4x" has been broken up at Ashford. "L1" engines of the newest 2-cylinder 4–4–0 type are working from Ashford and Ramsgate sheds.

The "C3" Earle Marsh 0–6–0s have all been withdrawn. There were 10 built in 1906 at Brighton Works which became S.R. Nos. 2300–9, British Railways 32300–9. They were very much associated with the West Sussex area and the Portsmouth district, stationed principally at Horsham or Fratton, being long familiar at Chichester where Mr. Coles' interesting photograph was taken. The remaining "C2x" 0–6–0s belong to an older series, but they have been rebuilt with "C3" boilers.

Several "West Country" 4–6–2s that had been running nameless for a considerable time have now received their names, including No. 34036, "*Westward Ho.*" "Merchant Navy" 35022, "*Holland-America Line*" was recently noted at Eastleigh in new dark green livery ready for proceeding to Rugby Testing Plant.

The diesel-electric main line locomotive, No. 10201, began intensive running with ordinary Waterloo-Weymouth expresses recently. Some notable speed and hill climbing performances have been recorded



A typical everyday railway scene. Southern Region No. 32303, one of the Earle Marsh "C3" 0-6-0s now withdrawn, shunting the yard at Chichester. Photograph by C. R. L. Coles.

behind the sister engine, No. 10202, on London-Exeter runs, and also on the Bournemouth line.

Pullman parlour and buffet cars now run in the boat trains connecting with the Southampton-Havre night service, on which the fine new steamer "*Normannia*" began sailings in March last.

London Midland Region

No. 46140, "*The King's Royal Rifle Corps*" is now a modified "Royal Scot" with latest type tapered boiler and fittings. New class "2" 2-6-2Ts Nos. 41320-1 have been completed at Derby and allocated respectively to 5A, Crewe North and 8B, Warrington. Nos. 41300-19 for the Southern Region are still in hand. Class "2" light 2-6-0 mixed traffic tender engines constructed at Darlington Nos. 46495-6 are stationed at 15B, Kettering; 46497 at 20A, Leeds. No. 12098, at 16A, Nottingham, is a further addition to the stock of 0-6-0 diesel electric shunting engines.

No. 46762, just withdrawn, was a Lancashire and Yorkshire type 2-4-2T built in 1890 as No. 1041 and sold to the Wirral Railway, Cheshire, in 1921, where it became No. 6. At grouping it received a number in the L.N.W.R. series and so became 6762. It had built-up coal rails on the bunker and in its earlier years of L.M.S. ownership was painted red with large numerals on the tank sides. Three other ex-L. and Y. 2-4-2Ts withdrawn lately were Nos. 50806, 50840, 50898.

Another of the early 4-4-0 Midland Compounds, No. 41004, has gone for scrapping. Engines of this type still work to a considerable extent on the Midland Division.

The shed in which L.M.R. locomotives were stabled at York while awaiting return journeys has been closed and such engines which now appear to be fewer in number are dealt with at the main N.E.R. depot. "B1" 4-6-0s work from York to Manchester, Victoria, as part of the interchange ordinary or special engine running often observable, particularly in the Yorkshire and Lancashire areas. One of the standard class "5" 4-6-0s stationed at Blackpool has worked through to Euston. An up sleeping car express arrived not long ago in charge of a L.M.R. class "5" 4-6-0 piloted by class "2" 4-4-0, No. 40659, from Crewe.

Two class "5" 4-6-0s have been used for trials on braked express freight trains with recording car over the Midland line between Toton and Brent Sidings, as have two W.R. "Britannia" 4-6-2s; Nos. 70020, "*Mercury*" and 70023, "*Venus*." It was understood that other types of locomotive might also be tried on these special runs, the introduction of which was mentioned in a recent issue.

E.R. and N.E.R. Locomotive Notes

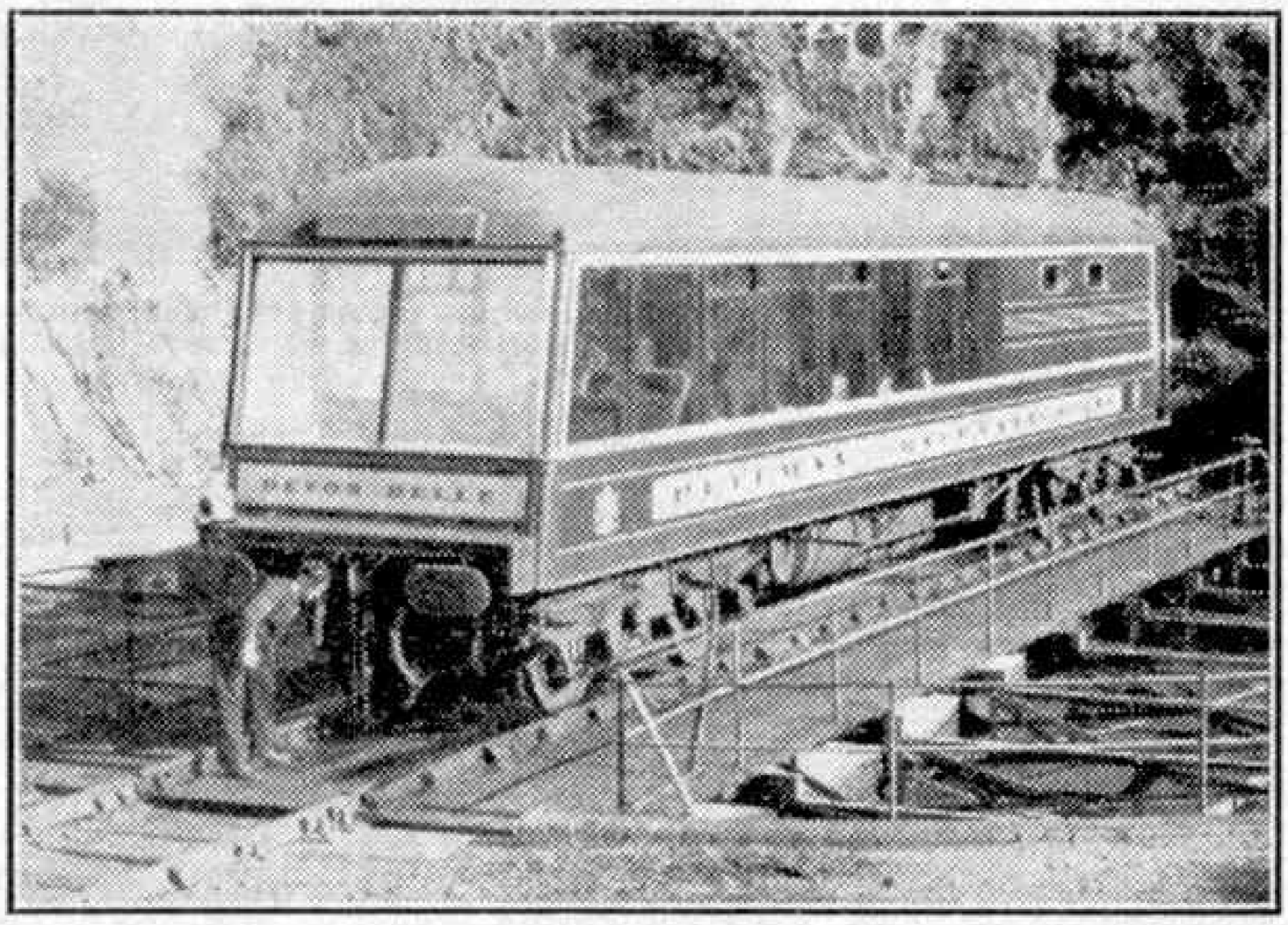
The last Great Northern Stirling 0-6-0 has been withdrawn. This was No. 64105, built as No. 313 and recently running as a "J3" with a domed boiler, 4 ft. 8 in. in diameter. Class "J4" is extinct as all the G.N.R. or former Midland and Great Northern Joint 0-6-0s retaining the smaller Ivatt boiler and fire-box have been withdrawn.

There are now no "J24" 0-6-0s. They belonged to the small-boilered North Eastern mineral engine series and were largely replaced on the heaviest duties by 8-coupled locomotives a good many years ago. The one remaining outside-cylinder "J62" saddle tank, No. 68200, of Manchester, Sheffield and Lincolnshire origin, has been removed from the stock list.

Completion of the large stud of 410 "B1" 4-6-0s will probably soon be announced, the final ones Nos. 61395-9 being under construction at the Works of the North British Locomotive Company Ltd.

Several "Britannia" class "Pacifics" returned to service on the Eastern Region early in the New Year after some modifications. Four were noted on mid-day expresses to and from Liverpool Street on 5th March.

Many "Pacifics" are now painted dark green and more "A1s" have received large rimmed chimneys, which improve their appearance.



Coaches are not often seen on turntables, but here is the Pullman Observation Car of the "Devon Belle" being turned at Ilfracombe. Photograph by R. Russell.

A New Zealand Wonderland

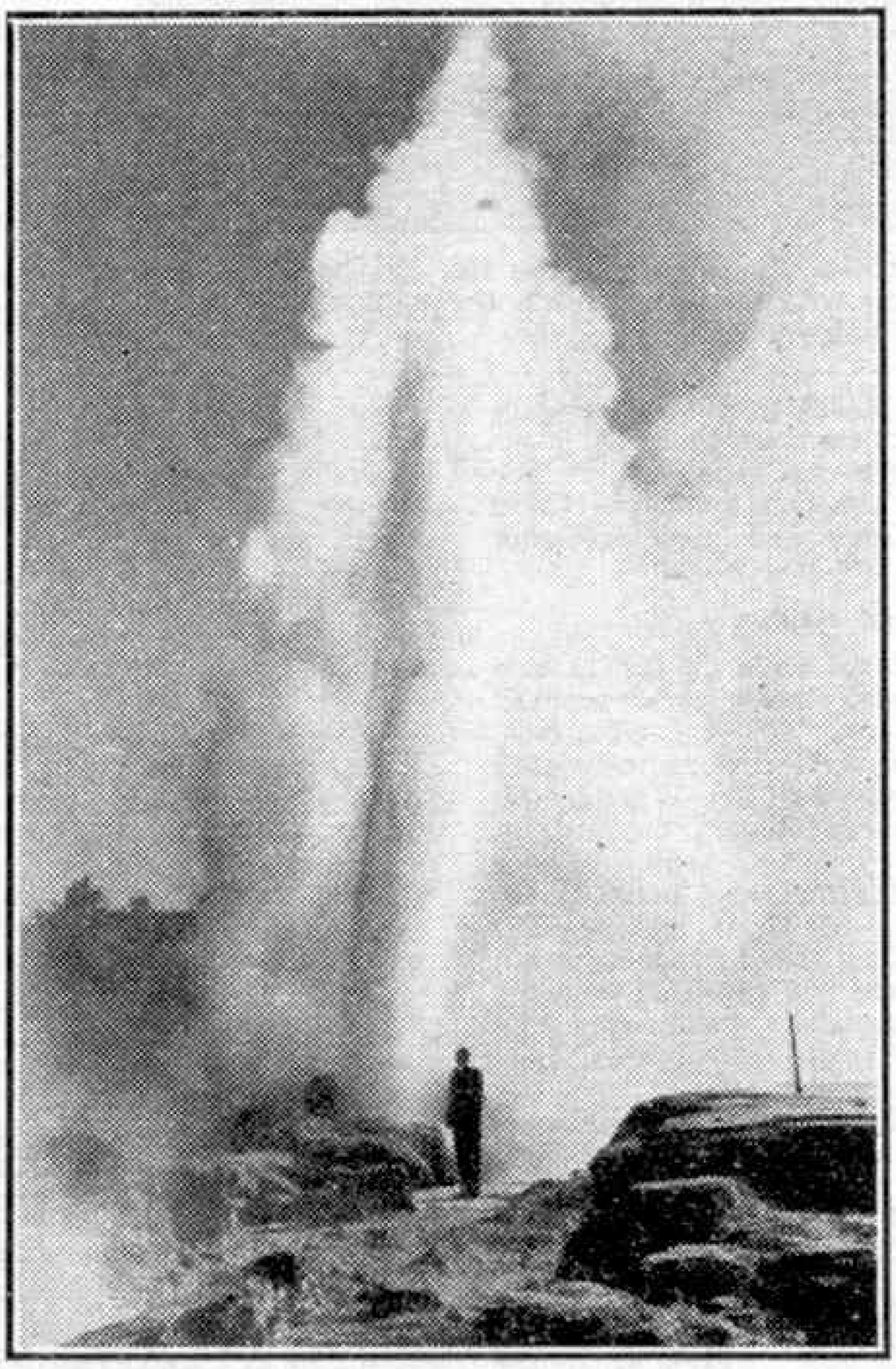
Feathery Geysers—Steaming Pools—Boiling Mud

By V. May Cottrell

NOWHERE else is thermal activity so extensive, or so widely diversified within such small compass, as it is in the centre of the North Island of New Zealand. For though confined to an area only 50 miles long and 20 wide, and so comparable in size to the English Lake District, the hot spring area from Rotorua to Taupo contains the largest geyser group in the world. A trip through this easily accessible wonderland is indeed a thrilling and unforgettable experience. Anyone who can view these marvels of nature without a feeling of astonishment and awe must be entirely devoid of imagination.

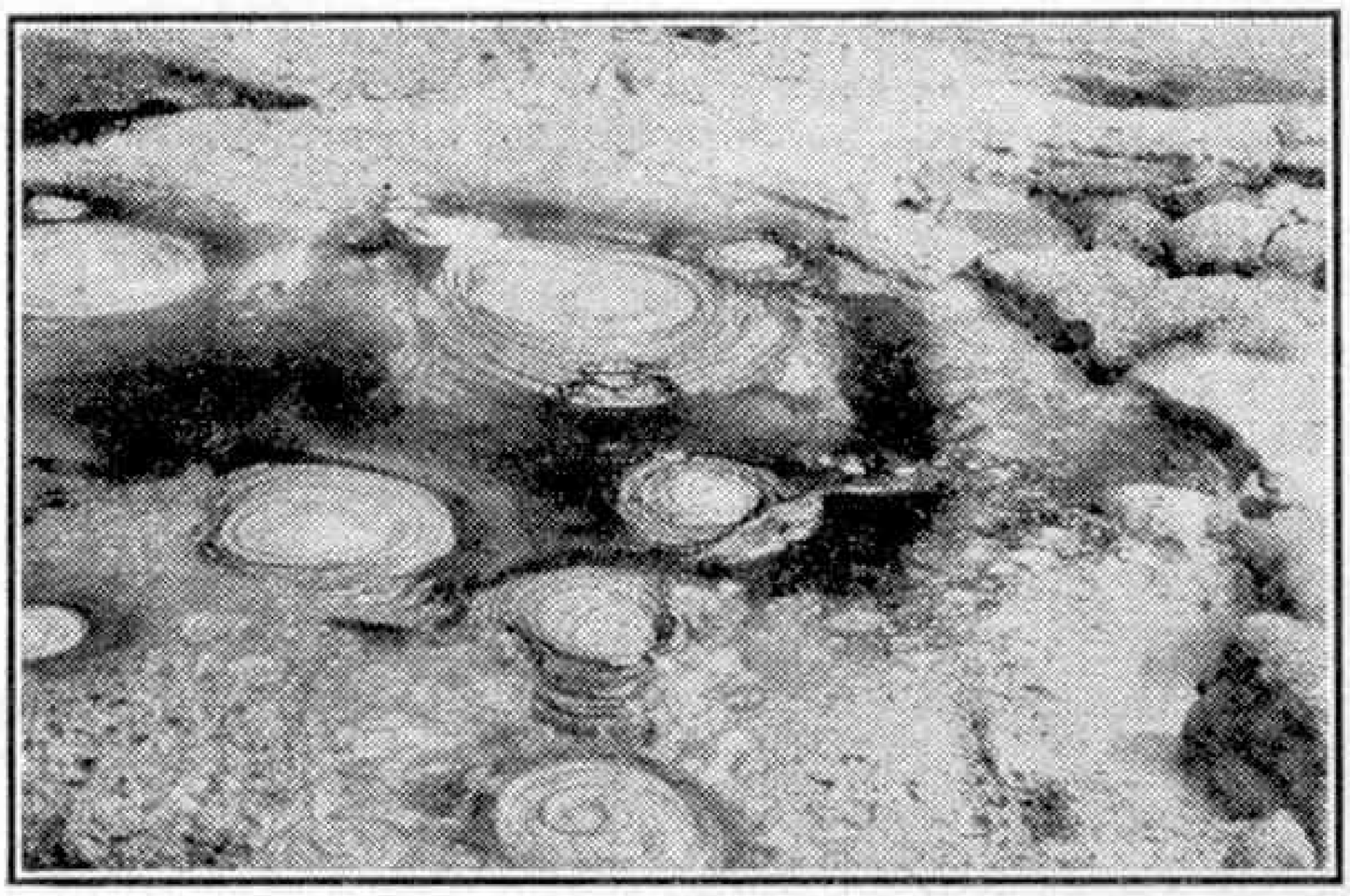
As we gaze upon the bewildering variety of thermal activity, we cannot help marvelling at the vastness of the mysterious underground energy responsible for these spectacular manifestations of power. We see natural cauldrons of clear, fiercely-boiling water; sullenly-plopping mud pools, with temperatures well above boiling point; gently bubbling hot lakes, sparkling and effervescing like champagne; and still, limpid pools of water of widely-varying temperatures, in shades of lime green, canary yellow, milk white and slate blue. There are geysers of every size and type in various stages of activity, spluttering mud-volcanoes and slowly-forming silica terraces, white, orange and brown. Other marvels are boiling waterfalls; deep fumaroles from the mouths of which hissing, roaring heads of steam issue with frightening force; and innumerable huge, almost fathomless craters of extinct volcanoes.

Of this amazing array of natural wonders, only a few examples can be mentioned in a single article. There is, for example the beautiful Pohutu Geyser at Whakarewarewa, a Maori village near Rotorua, whose spectacular shots are a delight to watch. This geyser plays intermittently. It throws an impressive steam-impregnated column of boiling water some 50 to 70 feet into the air, shooting with immense force from an oval tube-like opening about two feet wide. When Pohutu is about to play a nearby pool of deep blue water 15 feet in diameter, called Te Horo, reaches boiling point, overflows into a channel and then becomes a geyser, on a small scale, until Pohutu itself bursts forth in all its majesty and splendour.



The beautiful Pohutu Geyser at Whakarewarewa. When it is in action its column of steam and boiling water shoots from 50 to 70 feet in the air.

Geysers vary greatly in their behaviour and in the spacing of their displays. Many small ones, throughout the whole thermal region, play continuously like a fountain, and boil and bubble fiercely, or simmer gently between shots, while others remain quiescent for varying periods, seeming to conserve their energies for spectacular outbursts. Some play at intervals of a few minutes, with unfailing regularity.



Pools of boiling mud in New Zealand's wonderland of geysers and hot springs.

Three small geysers in the grounds of the Government Sanatorium at Rotorua have been partly tamed by the engineers, and are piped and controlled to provide constant entertainment for visitors. They are also floodlit at night with coloured lights for added effect.

Yet another method of inducing geysers to play at set times is to "soap" them. A quantity of soap thrown into the geyser-basin produces the desired result within a certain period. Thus the lovely Lady Knox Geyser, at Waiotapu, came into being. At one time there was a prison camp at Waiotapu, and when the prisoners washed their clothes the suds drained away into a hole nearby. One day, to their astonishment, a beautiful geyser suddenly burst forth, and now with the aid of soap, this impressive geyser can be relied upon to give a magnificent display every morning at ten o'clock, playing to heights ranging from 60 to 70 feet, and continuing from 30 to 75 minutes.

A visit to the weirdly-wonderful Wairakei Valley, six miles from Lake Taupo, presents us with yet another method of inducing geyser action at stated intervals. By shutting off the normal flow of water from those graceful twin geysers, the Prince of Wales Feathers, the guide can produce a pleasing display in a matter of minutes. This also applies to other thermal action in the vicinity. For instance, the Dancing Rock can be induced to perform at will by similar means. Thus each fresh party of visitors is assured of interesting and inspiring sights which they might otherwise miss.

But in this same valley there is at least one geyser that needs no artificial aid to regular action, for it plays 45 minutes after an interval of 14 minutes with unfailing regularity. And that is why it was perfectly safe for the Maori guide to pose for her photograph right inside the fearsome Dragon's Mouth Geyser, so-called because of its weird formation.

In the small area of Wairakei Valley is compressed an amazingly varied assortment of thermal activity. Practically every foot of the mile-long track abounds in sights to be met with in few other parts of the world. For here is unlimited and unbridled power, fierce, primeval and sinister in the extreme. A visit to the famous Karapiti Blow Hole, farther down the valley, tends to confirm this impression of terrific, untamable forces, demoniac in their savagery. This great steam vent is often referred to as the safety valve of New Zealand, because it releases some of the tremendous pressure of steam continually arising from subterranean fires and confined by the earth's crust.

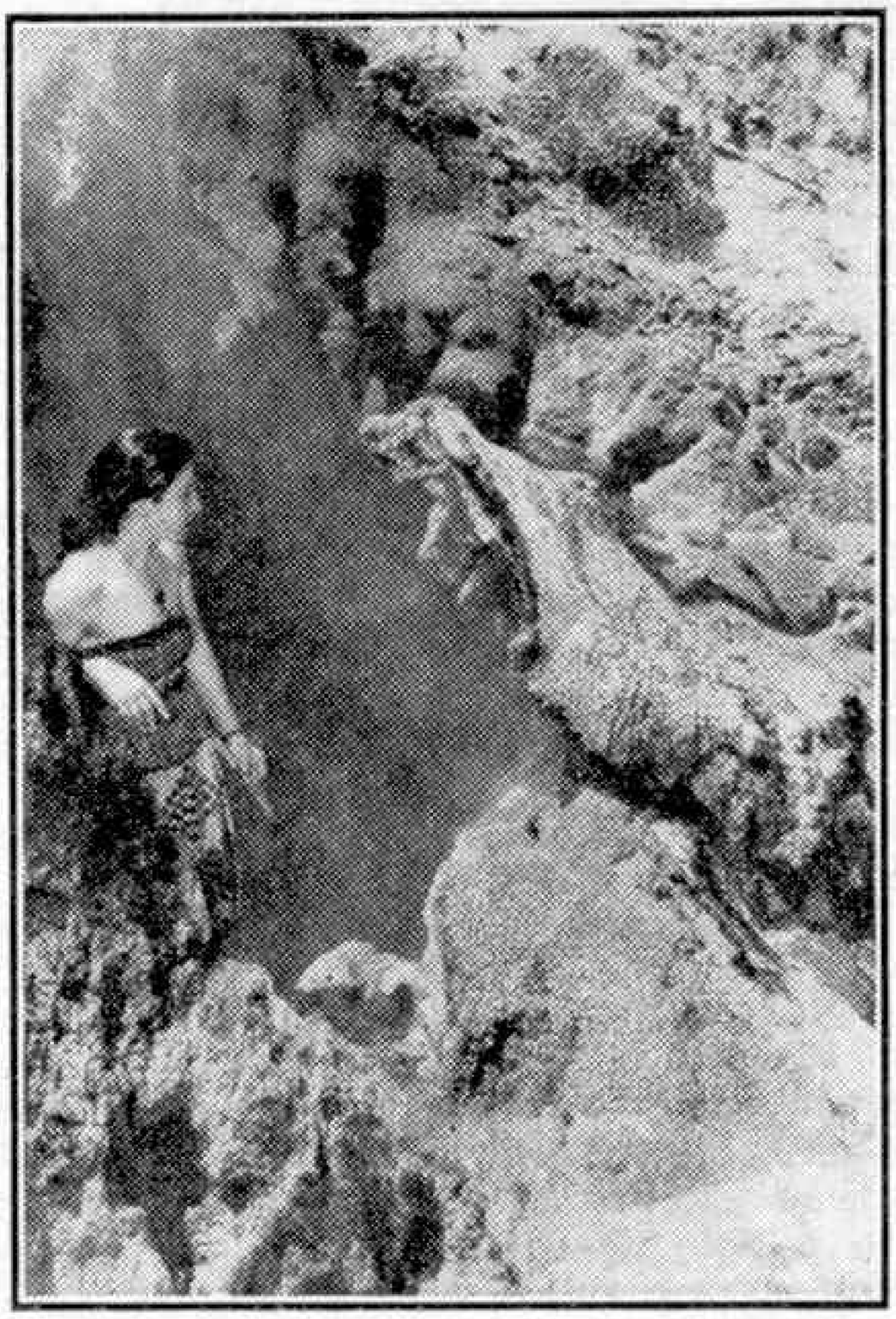
Boiling water provided by nature is used for cooking in Maori villages in the thermal spring region.

Karapiti Blow Hole is known to have been blowing off continuously for at least six centuries, day and night, year after year, for it was known to the ancient Maoris long before the advent of the Pakeha or white man. The great volume of steam gushes out under the tremendous pressure of 180 pounds to the square inch with a hissing roar, alarming in its intensity. At night it provides a beautiful and impressive spectacle when the guide lays a blazing kerosene-soaked sack at one side of the blowhole, and the down-draught draws smoke and flame and pieces of blazing sacking into the tall jet of steam. The steam is dry, otherwise it would quickly extinguish the flames. The effect is most spectacular, for in the whirling column of steam, now darkened by smoke, thousands of orange-coloured sparks dance and flash and scintillate in a brilliant fireworks display.

In this connection I might mention that experiments are now being conducted at Wairakei, near the Government Tourist Hotel, with a view to utilising the vast power latent in the naturally-produced steam for the generation of electricity. This has been accomplished most successfully in Italy, and it is hoped that the New Zealand project along these lines will prove equally successful in the near future.

It is well worth while to visit Orakei-Korako, "The Place of Adorning," so-called because of its clays, varying in colour from rose red to palest pink, which are used by the Maoris for personal adornment. It is situated on the banks of the beautiful Waikato River, and provides a new thrill as we gaze upon the largest silica terrace formation now in existence. While looking with admiration at these gleaming white cliffs, like great waterfalls frozen into immobility, we think regretfully of the beauty and grandeur that was lost for ever when the wonderful and extensive Pink and White Terraces, near Rotorua, were destroyed during the Tarawera Eruption of 1886.

Throughout the whole thermal region there are numerous hot springs of chemical-laden waters famous for their qualities. Then there are the warm springs and tepid pools much used by the Maoris for bathing and washing their clothes, especially at Whakarewarewa and Ohinemutu, where their homes are set right in the midst of the thermal activity. Here nearly every family has a private warm bathing pool in the roughly-screened-off back yard. Fiercely boiling pools and hissing steam vents near their homes also provide excellent cooking facilities.



The Dragon's Mouth Geyser derives its name from its weird formation. It plays and rests with unfailing regularity.

It is a common sight to see Maori women placing food, packed in a native flax kit, in the boiling water so generously provided by nature. When taken out later the food is cooked to perfection. Tea kettles are set to boil on ledges in the shallow water at the side of the pool. Anglers also find boiling springs in various localities useful when on a camping expedition. For it is an actual fact that they can catch trout in a cold stream and cook them immediately in a boiling pool only a few feet distant. Strangely enough the boiling water, steam and sulphurous fumes associated with thermal action do not appear to retard vegetable growth in the vicinity.

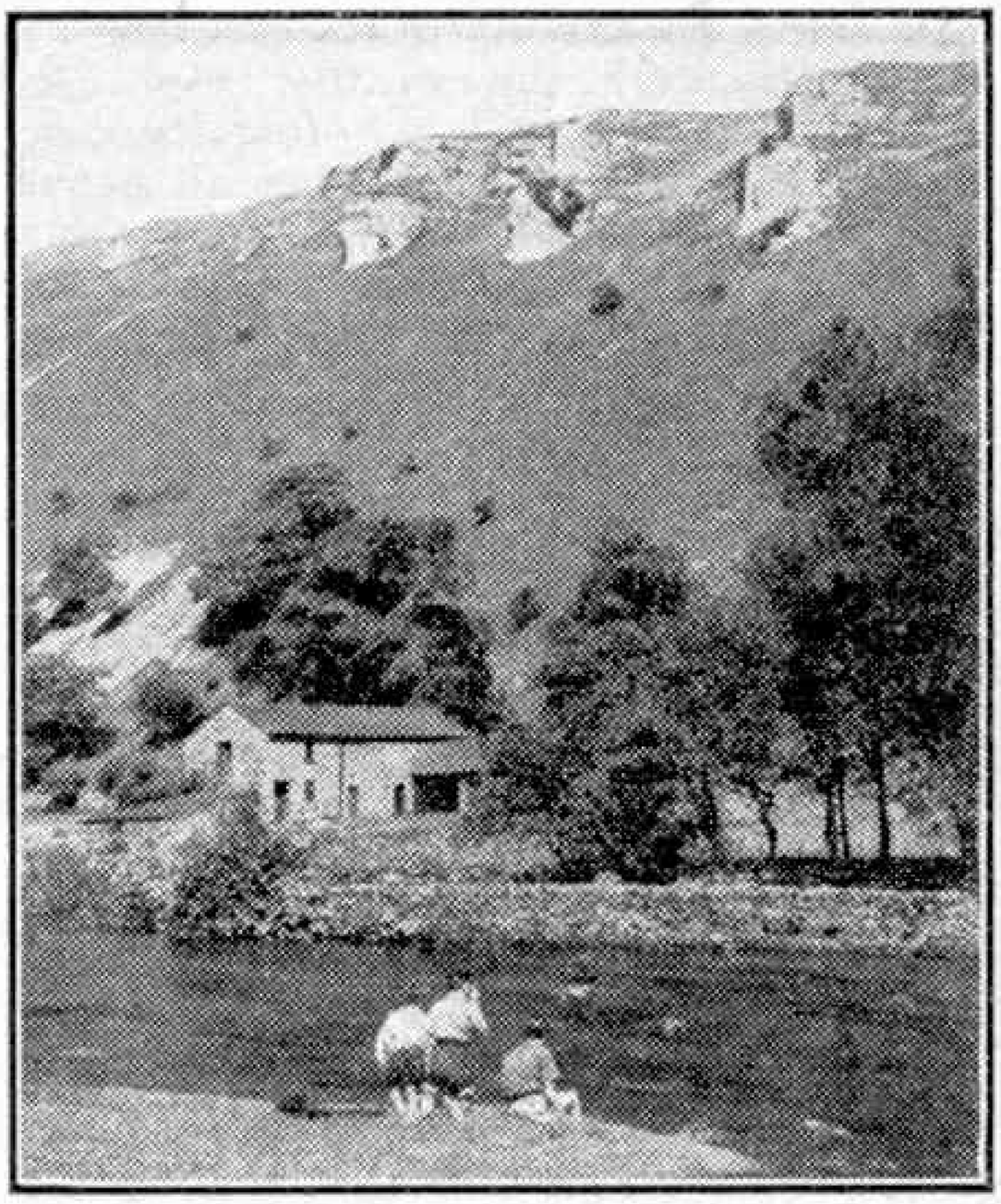
The greatest known geyser, with a crater two acres in extent, was the enormous Waimunga Geyser or Black Water, which used to erupt fairly regularly to a height of over 1,000 feet, providing the most appallingly spectacular sight of all. In 1903, it overwhelmed (*Continued on page 238*)

Photography

Bus Tours

By E. E. Steele

WHEN one gets a little dissatisfied with local surroundings, and cannot find many new subjects for interesting photographs, it is refreshing to break new ground, an easy matter in these days of ample bus services. Even villages have organised tours to beauty spots and places of interest, while in towns week-end services to places often a hundred miles or more from home are usual. These trips often work out at amazingly cheap rates. Last year I



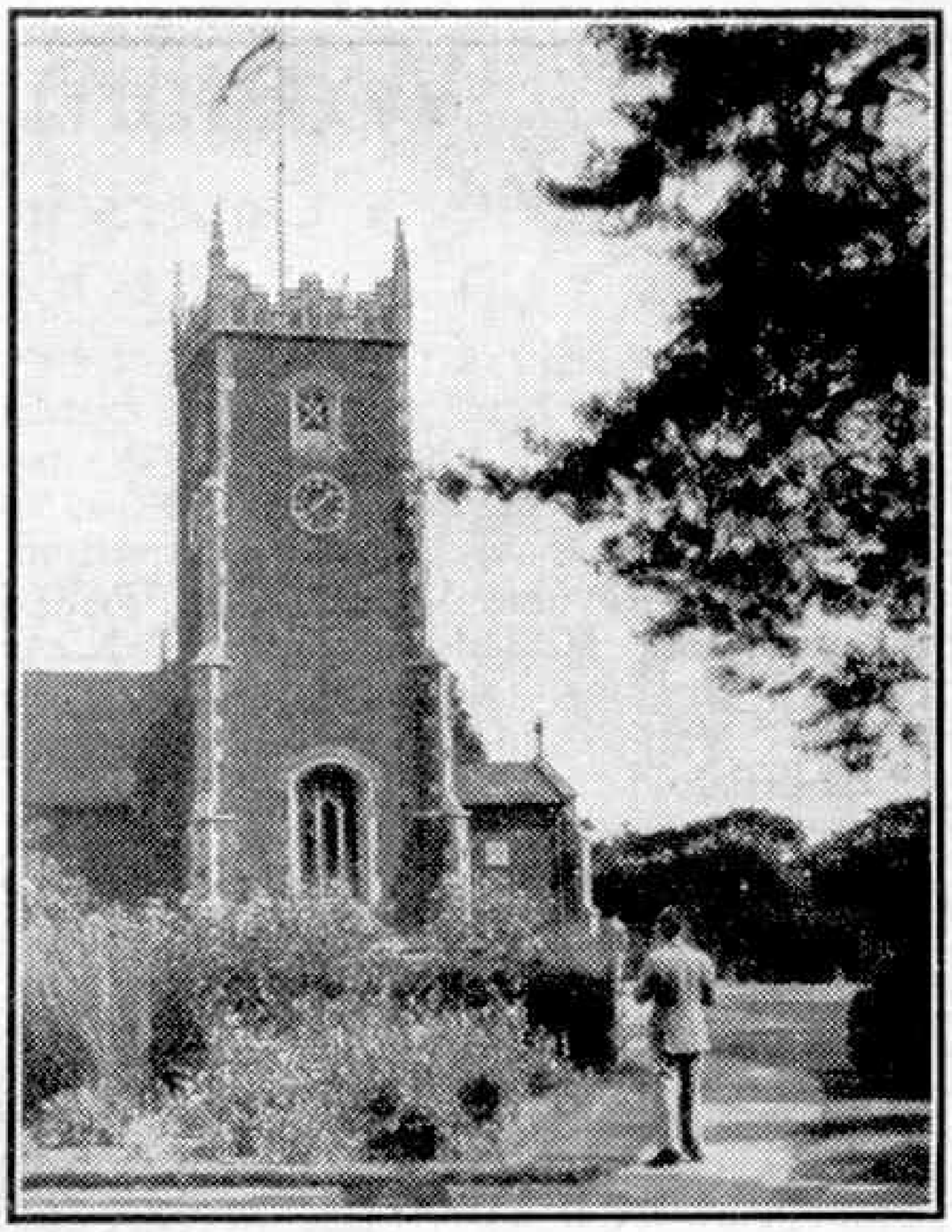
Monsal Dale in the Peak District.

frequently travelled up to 200 miles for a few shillings, and greatly enjoyed visiting new scenes and taking photographs as reminders.

Derbyshire provides a wealth of interest and beautiful scenery. Away from the mining areas, among the peaks and dales, there is so much to photograph and enjoy. Dovedale and Monsal Dale are delightful, and provide endless opportunities for snapshots. The large country mansions, like Chatsworth House and Haddon Hall, are open to the public on certain days, and for a small fee one may explore these beautiful buildings and lovely grounds for hours.

In Norfolk the countryside around Sandringham is very fine. The Royal Gardens are a great attraction for the visitor, and one also may obtain pictures of the Church and surroundings.

Indeed in every county there is much to admire, and bus tours bring favoured spots within reach of those of us not possessing

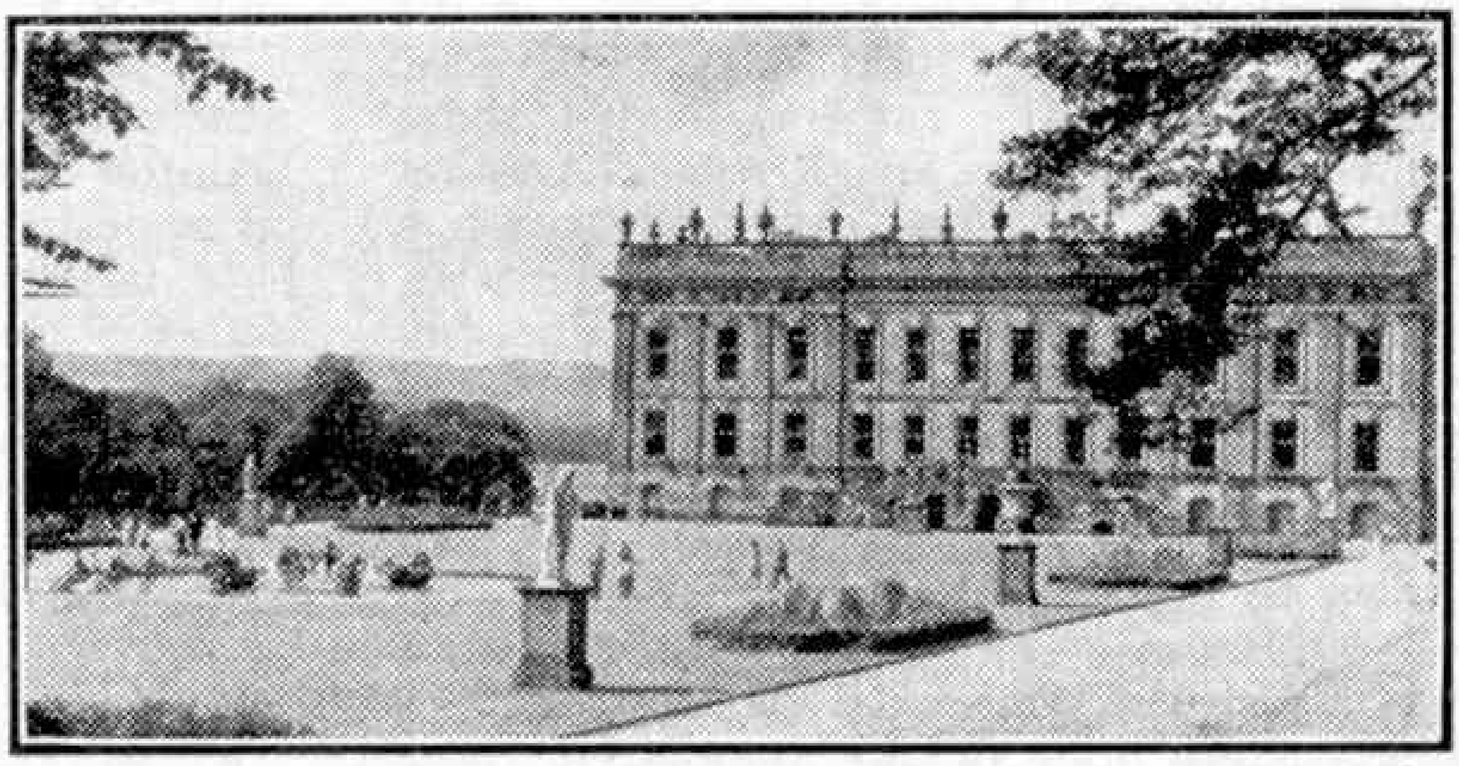


Sandringham Church. The illustrations to this article are by the author.

powerful cars and pots of money. The photographer may be able to defray his expenses by taking a few photographs of members of the party, for there is always a big demand for personal souvenirs of such outings to fill the family albums.

The use of panchromatic film and a yellow or green filter will make the best of those combinations of colourful scenery and skies, with light clouds, that will be found when the weather is kind. When photographing buildings watch the light and have the sun shining from the side, and not from behind the camera, thereby avoiding flatness and lack of modelling.

It is always best to stroll round a building before attempting to take any photographs. In this way the best viewpoints can be discovered and film saved. There is often a slightly higher view or an opening through trees, which will show the place to better advantage, and give a more pictorial result than just a bare record. Darker trees or foliage around the edge of the picture help to frame it and keep the interest within the main subject.



A fine view of Chatsworth House.

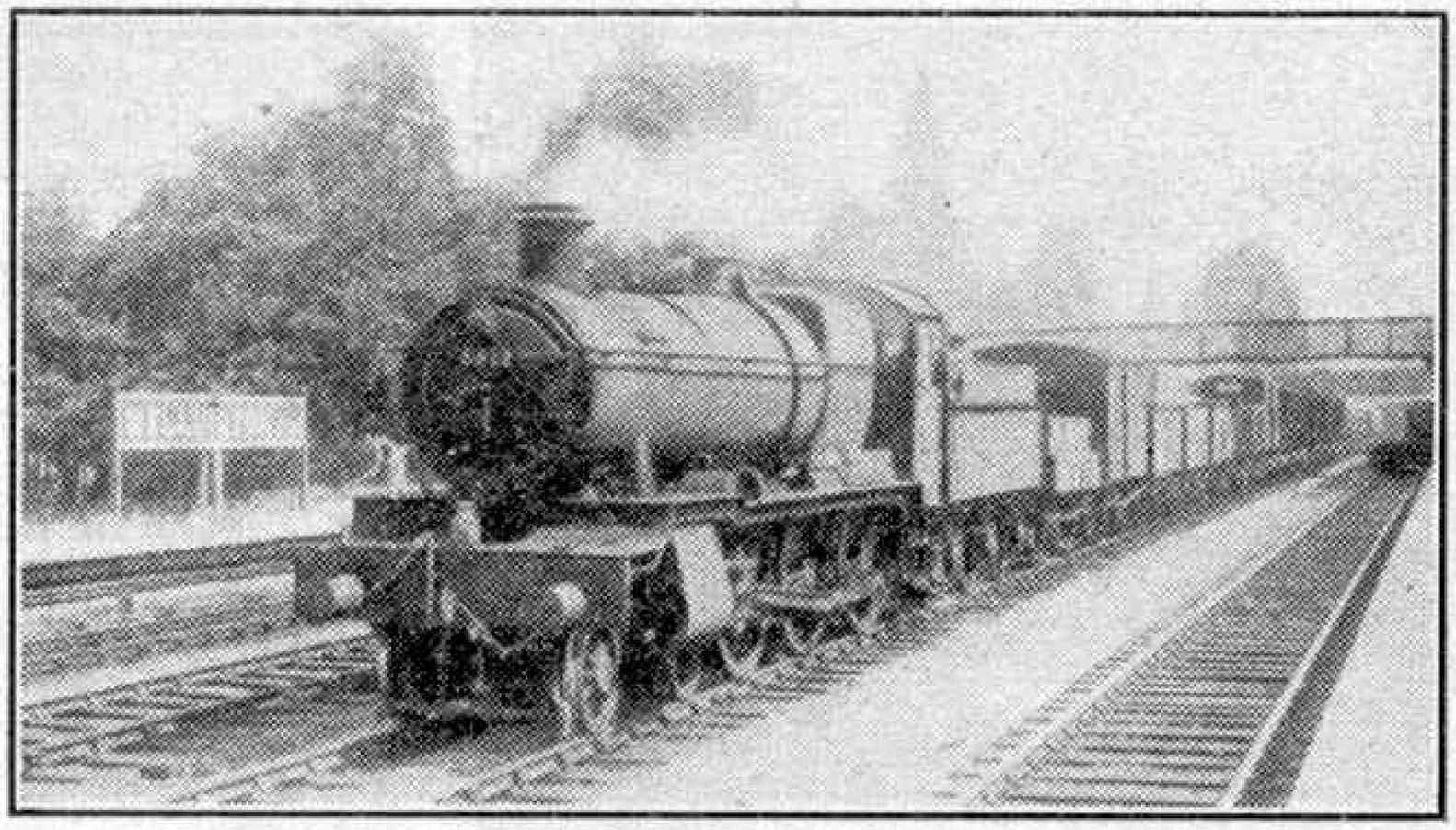
Western Adventure

With a Camera in Devon and Somerset

By H. Gordon Tidey

IT occurred to me in the summer of 1951 that I might well devote my annual week of railway photography to the Western Region of British Railways, as recently I had paid it scanty attention. In several previous years I had visited the London Midland and the North Eastern Regions, and as things are had pretty well exhausted the present possibilities.

I arranged to reach Wellington, Somerset, on the first day and to operate for two days in that neighbourhood. So I packed a mackintosh and travelling case in the back of the car, along with my camera in its case, which also included 24 single dark slides, focussing cloth, colour filter, spare lens, exposure book, and six dozen 6 in. by 4 in. plates and dark-room lamp. I left Barnet in heavy rain about 9 a.m., travelling via the Great West Road through Slough, Andover and Amesbury, and with several stops reached Wellington soon after 3 p.m.



No. 6822 "Manton Grange" at Wellington Station, Somerset, before starting to climb Wellington bank with a through goods train.

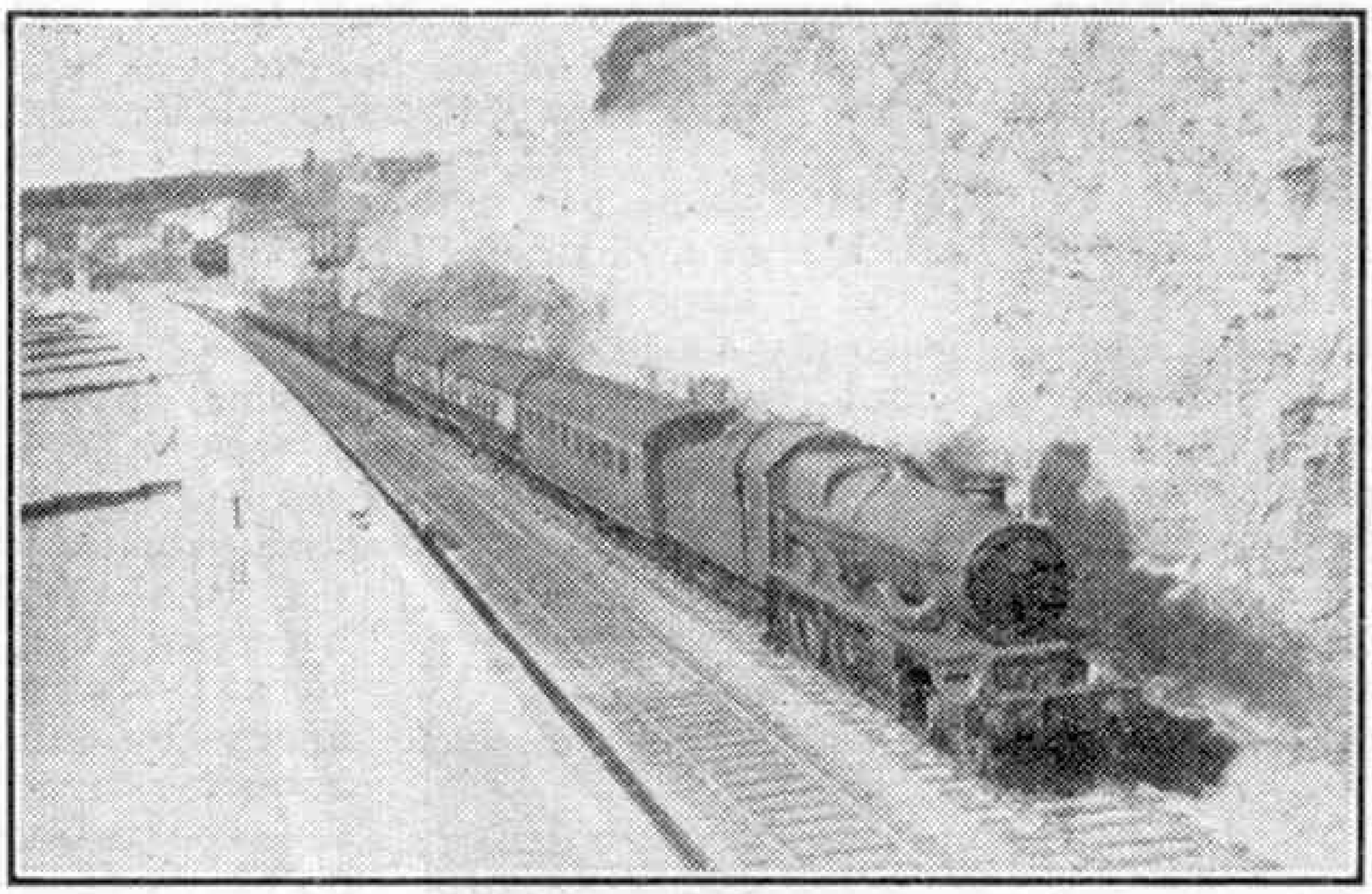
I cannot sufficiently stress the blessing conferred by the use of a car on a trip such as this. One is saved much labour in carrying a large amount of heavy luggage, which is an important point when touring, particularly when using glass plates of the size I took with me. Boxes of these, together with the camera, loaded slides and so on certainly weigh some! Another advantage is that one can easily reach a number of spots unattainable otherwise, frequently finding places where one can get down to the main line. Some of my most attractive viewpoints have been discovered in this way, quite by accident.

I wasted no time in making my way down to the station to make friends with the Stationmaster and staff. As is probably well known, Wellington station lies at the eastern foot of the celebrated bank of that name. The bank extends nearly as far as Burlescombe and the summit is reached in the tunnel just east of that station. Most of the westbound trains manage the ascent without assistance, but some of the heavier ones are piloted, mostly from Taunton. The goods trains usually stop at Wellington, however, and nearly all have the assistance of a "pusher," as a rule a 2–6–2T, up to Burlescombe.

Unfortunately the weather was very unsettled, giving, as is so often the case, periods of bright sunshine when all signals were at danger, but heavy showers when any trains were about. But by dint of patience I managed to obtain a few shots of trains in both directions from the station. Here one sees all classes of G.W.R. 4–6–0s, as well as 2–6–0s, 2–8–0s and 2–6–2 tanks.

My next headquarters was at Totnes, which is a convenient centre for both Dainton and Rattery banks, which are on opposite sides of the station. Arriving here late on the Thursday afternoon, I had the clear Friday and Saturday, the busiest days of the week, in front of me, and the weather was slightly kinder. The station has up and down platform roads and central through lines, and serves the Ashburton branch too. This is operated by a push-and-pull service with two coaches in charge of a little 0–4–2T.

At weekends in the summer all main line trains here are double-headed and one



A striking view of the sea wall and railway at Dawlish. The train is bound for Manchester from Plymouth, and is in charge of No. 5028 "Llantilio Castle."

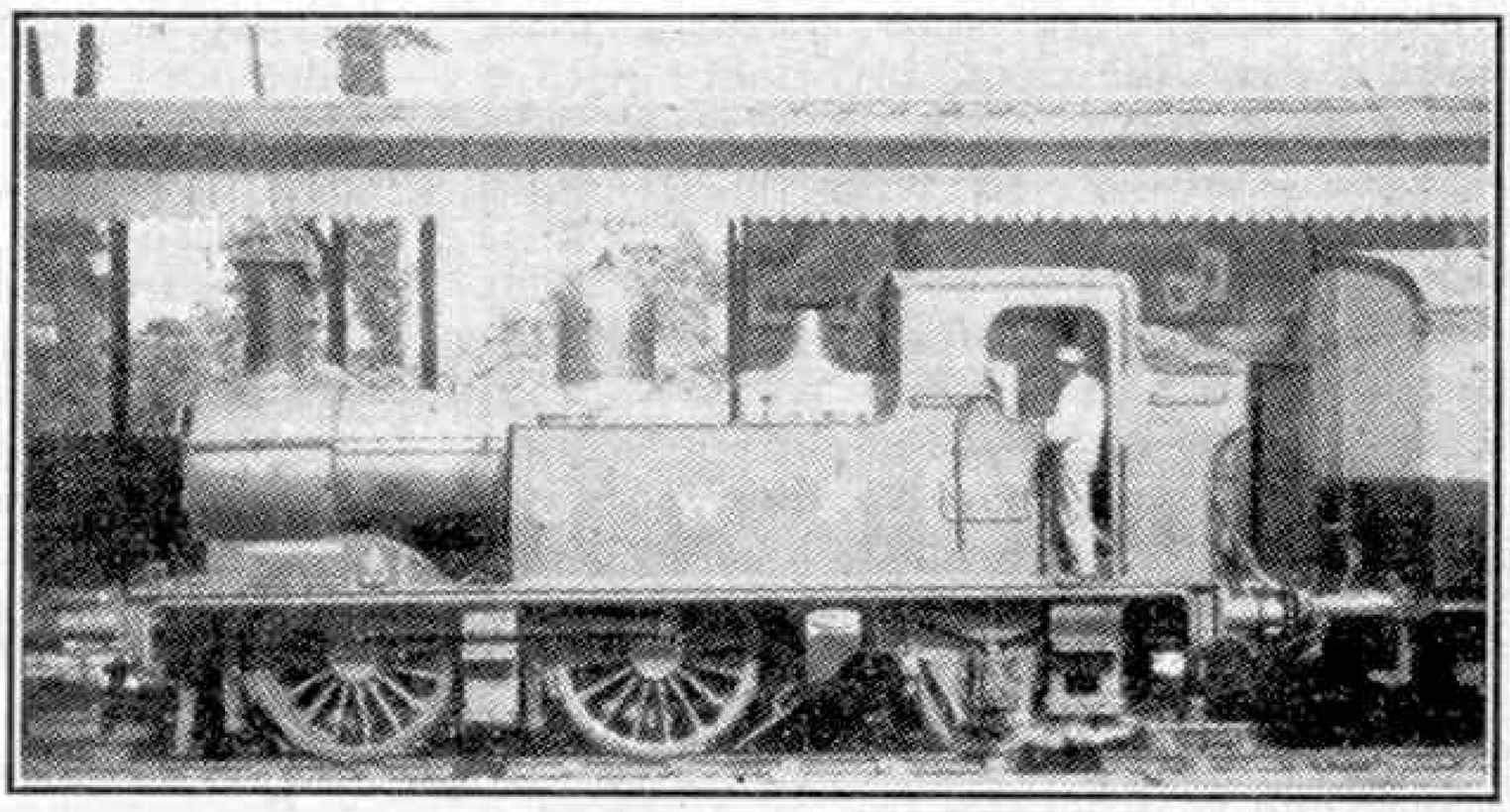
gets all sorts of combinations of "Kings," "Castles," "Counties," "Stars," "Saints," "Manors," "Granges" and "Halls" and even 47xx 2-8-0s, making for endless variety.

I had hardly arrived at the station when two very young "Spotters" joined me and very useful they proved in identifying trains, many of which were running late and out of course. Later, we were joined by an older enthusiast armed with a camera and with these three I spent a very enjoyable day as all were local residents and fully acquainted with the workings. On a busy summer Saturday one sees quite a number of interesting trains to and from Plymouth and Penzance, many, including the *"Cornish Riviera Express,"* running in two or more portions. I was impressed by the extreme usefulness and versatility of the "Halls" as well as of the "Manors" and "Granges." They are called upon to work all manner of trains, from pick-up goods to crack passenger expresses, as well as for piloting, and they appear perfectly at home with anything they are asked to do.

I left about 5 p.m. for my next venue, Newton Abbot. This is an excellent centre, because one can get excellent shots from the station itself, and also can operate on the Torbay branch as well as at that favourite spot on the sea front between Dawlish and Teignmouth, which is within easy reach by car.

I have often been led to wonder how many square miles of photographic emulsion have been exposed here since railway photography became a serious hobby. My own experience has always been that the light is as good as anywhere in the kingdom. This I attribute to the light cliffs on one side and the sea on the other giving together the maximum reflection of light. I find I can give about half the exposure that is necessary elsewhere and indeed on earlier visits have spoilt results by over-exposure. On this occasion I experimented by giving half the usual, with satisfactory results. Photographers please note!

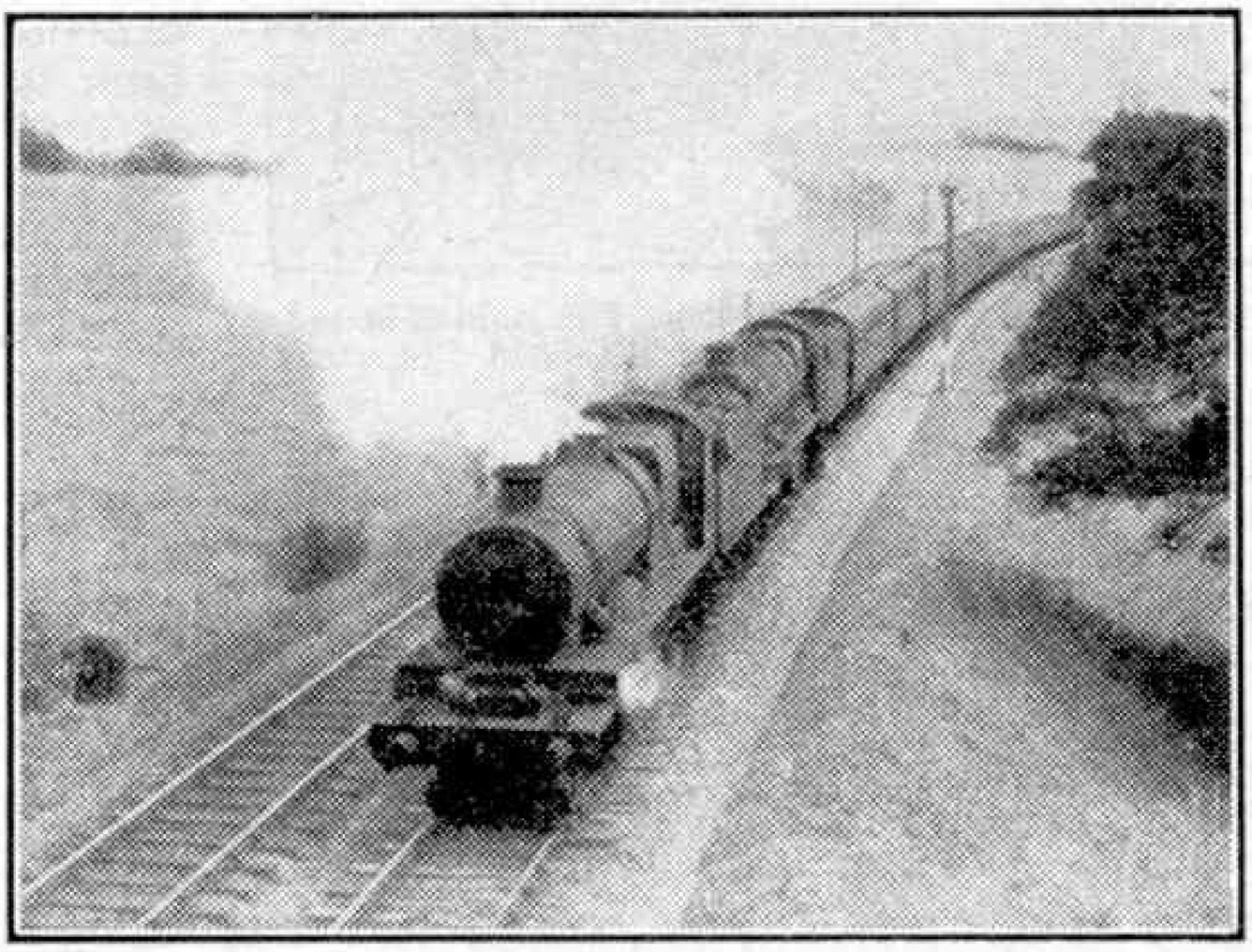
Owing to an improvement in the weather I was able to obtain a series of useful results. After spending the best part of a day on the sea wall and overbridges, I returned to Newton Abbot and took the road to Totnes. After passing the latter town this runs parallel to the line at places and affords opportunities on the renowned Rattery Bank. As it was Monday, the trains were not only less frequent, but also much lighter than on the previous days, with the result that pilots were not needed. I sadly missed the Friday—and Saturday—only trains



A pleasing side view of 0-4-2T No. 1470 working the Ashburton branch train at Totnes, Devon.

and the duplications, but in compensation I got a number of goods and parcel trains that are absent at weekends.

At my hotel I was faced with a difficulty which is always a nightmare to photographers using plates, that of "changing." The fortunate film user has nothing to do but remove his used spool and replace it with a new one, an operation that can be performed in daylight anywhere. With plates the matter is quite different, the first essential being an absolutely dark room. It must be realised that each separate slide has to be emptied, each plate numbered for purpose of identification, and all finally repacked in the box from which the fresh ones have been removed. After that each slide must be refilled. All this involves a considerable amount of time during which the plates are perforce exposed to any stray light that may enter!



A "Star" and a "King" tackle the ascent of Rattery incline at the head of a down Plymouth express. The engines are No. 4056 "Princess Margaret" and No. 6014 "King Henry VII."

Many hotel bedrooms have a glass fanlight over the door, invariably with a particularly hefty light in the passage outside. Turning this light out is quite useless, because some other visitor is certain to switch it on at the exact moment that one has a pile of plates spread out. Then, if there is no fanlight a lovely beam of illumination can come under and around the door. Again, the window is often provided with flimsy curtains absolutely useless for excluding light, and if situated on a main road one gets a procession of cars with their headlights on, rendering the room almost as light as day. Many is the time that I have had to enter on a frantic struggle inside a wardrobe, empty one slide at a time, number the plate and push it hurriedly under a focussing cloth while a car passed outside!

On this occasion conditions were so impossible that I had to beg permission of the Landlord to borrow a cellar. I presume he did not think it wise to turn me loose among his beer barrels, but anyhow he stated he had only a coal cellar, which was extremely dusty and cobwebby, so I had to do the best I could in that. There was nothing in the way of a bench or a chair, so I searched for and found a large lump of coal on which to place my slides etc., sliding and slithering about on loose coal all the time. Every time I stooped I put my face into a cobweb and when I stood up the top of my head was similarly treated. This was varied by bumping a rafter and finally by my knocking over the portable dark room paraffin lamp, thus leaving myself in complete darkness; which involved putting everything away before I could relight the lamp—and to cap all I had left my lighter in the bedroom!

I felt rather nervous as to whether I had performed the operations correctly. Under such conditions it would be easy to put the used plates back in the slides and repack the unused ones, but fortunately everything turned out in order on this occasion.

My two days at Newton Abbot brought my activities to an end. After an uneventful run home, during which I was unable to take advantage of glorious sunshine owing to lack of time, all that remained of an interesting week was the operation to which I always look forward with the keenest anticipation—the development of my plates. Some of the results you see on these pages.

In previous articles I have commented on the individuality of the engines of the former railway companies. One hopes it will be many years before new "Standard" types completely oust our old favourites. When that day comes, we shall be able to go almost anywhere in the British Isles and see precisely the same engines, a very poor prospect for enthusiasts such as myself.

BOOKS TO READ

Here we review books of interest and of use to readers of the "M.M." With certain exceptions, which will be indicated, these should be ordered through a bookseller.

"LONDON'S UNDERGROUND"

By H. F. Howson (Ian Allan. 12/6)

The pictorial section of Mr. Howson's book was reviewed in the "*M.M.*" for March last. Now the pictures are accompanied by an account of the different railway systems combined in the London Transport organisation.

When we think of the Underground we almost always mean the "tubes," those deep-level electric railways of standard gauge but with specially low-built rolling stock. London's first underground lines, however, were the Metropolitan and Metropolitan District, which were steam worked for many years. The account therefore starts with those two railways, which were mostly sub-surface lines, and then deals with the early tubes, their deep-level construction having become possible as the result of developments in tunnelling technique and in electric traction.

After reviewing the early lines, the author gives an up-to-date survey of the Underground system as a whole, with its various extensions into the suburbs. Such matters as signalling and track arrangements are dealt with, along with maintenance and overhaul of equipment, traffic control, staff training and tickets, the whole giving an interesting insight into some of the lesser-known features of London Transport, while in conclusion future plans are discussed.

"LAMPSHADE MAKING"

By F. J. Christopher (Muller. 6/-)

This addition to the publisher's series of Craft Handbooks deals with one of the most pleasant of light handicrafts, and one that has increased greatly in popularity during recent years. It is written by an experienced instructor and demonstrator.

The introduction deals with essential preliminaries such as the purpose of lampshades, and the bearing this has upon the type of covering material to be used; deciding the size and shape of lampshade: basic equipment and materials; and forms of decoration. The following nine chapters cover the whole range of the craft, and include instructions on how to make both simple and more elaborate lampshades. Over 30 excellent line drawings help to make the text easily understood.

"THE A.B.C. OF LONDON TRANSPORT BUSES AND COACHES"

(Ian Allan. 2/6)

Here is the 1952 edition of a most useful "A.B.C." for bus fans. It contains a vast amount of detail information that will delight the enthusiast, with a list of garages in the central and the country areas, and it is well illustrated by pictures of different types of vehicles. The experienced bus spotter will need this latest edition; with it the beginner will make a start in this fascinating hobby.

"SMALL ELECTRIC MOTOR CONSTRUCTION"

By J. Gordon Hall

(Percival Marshall & Co. Ltd. 5/-)

A second edition of this book has been prepared in response to requests for one with a more extensive field than that covered in the original of some 10 years ago. There is a remarkable amount of information in its 86 pages, beginning with the principles of the working of electric motors, and their design and construction. Then follow details of various types of motors and their operation and control, with a most useful section including tables and dimensions bearing on the subject of electric motor design, construction and performance.

The illustrations, mostly line drawings, are exceptionally clear.

"SUCCESSFUL CONJURING FOR AMATEURS"

By Norman Hunter (Pearson. 18/-)

The secrets of scores of conjuring tricks are revealed in this fascinating book, which will delight the amateur sleight-of-hand entertainer. The tricks are explained by Norman Hunter, whose conjuring articles in the "*M.M.*" have made his name familiar to readers. He covers everything from simple card tricks with an ordinary pack to the spectacular "Sawing the Lady in Half." Between these extremes he describes such things as conjuring with flowers, colours and hats; mysterious boxes; magic wands and vanishing tricks. Nearly 500 "how-to-do-it" diagrams help to explain the text.

"THE LONDON, CHATHAM AND DOVER RAILWAY"

By R. W. Kidner (Oakwood Press. 9/6)

This further addition to the "Oakwood Library of Railway History" tells the tale of a railway that did not rank very high in popular esteem, but had many of the attributes of an important system. It ran Continental trains and steamer services; it had a heavy suburban traffic; and its Chairman was one of the most remarkable figures in the railway world of the time. The Chatham's financial standing seems always to have been a little doubtful, but it never gave up trying during many years of fierce competition with the older-established South Eastern, and in the end it was united with the latter under a Managing Committee, in 1898.

The book deals with the development of the line from a more or less local system in East Kent to a through route between London and Dover and the Kentish Coast. The Chatham entered the railway scene late, but it expanded in spite of varying fortunes, and its extension into the capital was a complicated business that makes somewhat involved reading. Then comes the story of its motley collection of locomotives of early days, and how they gave place to more orderly construction in later years. The little Chatham engines, with their varied names, were a plucky lot, for their road was hard and their trains of somewhat austere coaching stock were heavy.

There are a good number of illustrations, with maps and diagrams that are commendably clear.

"CAN SCIENCE STOP IT RAINING?"

By Dr. J. Gordon Cook

(Merrow Publishing Co. Ltd. 2/-)

Our British climate has a bad reputation, especially among visitors from countries where long spells of fine, sunny weather are the normal thing. The question that forms the title of this handbook is therefore very topical, and it is also the subject of one of the interesting articles about our weather that this second "Spotlight on Science" book contains. Other topics dealt with include measures to safeguard woollen clothing from the ravages of moths; a cosmic ray laboratory in London; putting the Sun to work; and blood transfusion.

"MOUNTAIN MYSTERY"

By Mary Dunn (Lutterworth Press. 8/6)

This exciting story, set in the Cader Idris district of the Welsh mountains, concerns the adventures while on holiday of four children, Jerry, Jo and Baba—and Cousin Beta whom they do not want because she is so prone to "weep like a watering can over the least little thing!" There is the mountain hut that they have been forbidden to approach; the Professor who sometimes is one sort of a person and sometimes behaves quite differently; and then there is the robbery in which he seems to be implicated. It is all very exciting.

Westland-built Sikorsky S.55 helicopter, similar to those which will be built in France by S.N.C.A.S.E. Photograph by courtesy of Westland Aircraft Ltd.

Air News

By John W. R. Taylor

One-Man Radar

A simplified radar approach aid, by which aircraft can be "talked down" to safe landings in bad weather by only one man, has been installed at Southend Airport. Housed in an old R.A.F. 'bus, it is able to pick up aircraft at a distance of 14–16 miles and up to 14,000 ft. Then, by following a "blip" on the cathode-ray tube of the radar, the air traffic controller can guide the aircraft down to within about half-a-mile of the runway, after which a final heading can easily be given.

The radar was designed by Ekco and, although only one aeroplane can be handled at a time, it can cope quite easily with the fastest jets.

French-Built S.55s

The French S.N.C.A.S.E. company are to build under licence the well-known Sikorsky S.55 ten-seat military and civil helicopter. The first contract may be for as many as 200 aircraft, in which case S.N.C.A.S.E. plan to test the practicability of Western Union co-operation by sub-contracting the manufacture of component parts to other factories in France, Italy and perhaps Western Germany.

Flying Boats "Down Under"

There are now four Australian and New Zealand airlines operating extensive flying boat services. Tasman Empire Airways, with five luxurious Short "Solents," have supplemented their busy trans-Tasman service with another to Tahiti. Qantas have bought three ex-B.O.A.C. "Plymouths" and, with their ex-Tasman "Sandringham" and "Catalinas," now have a fleet of eight flying boats. Another operator of "Cats" and "Sandringhams" is Barrier Reef Airways, whose routes round the Australian Coast total 1,353 miles; while Trans-Oceanic Airways fly two "Hythes" and a "Solent" from Sydney to Grafton, Lord Howe Island, Hobart and Port Moresby.

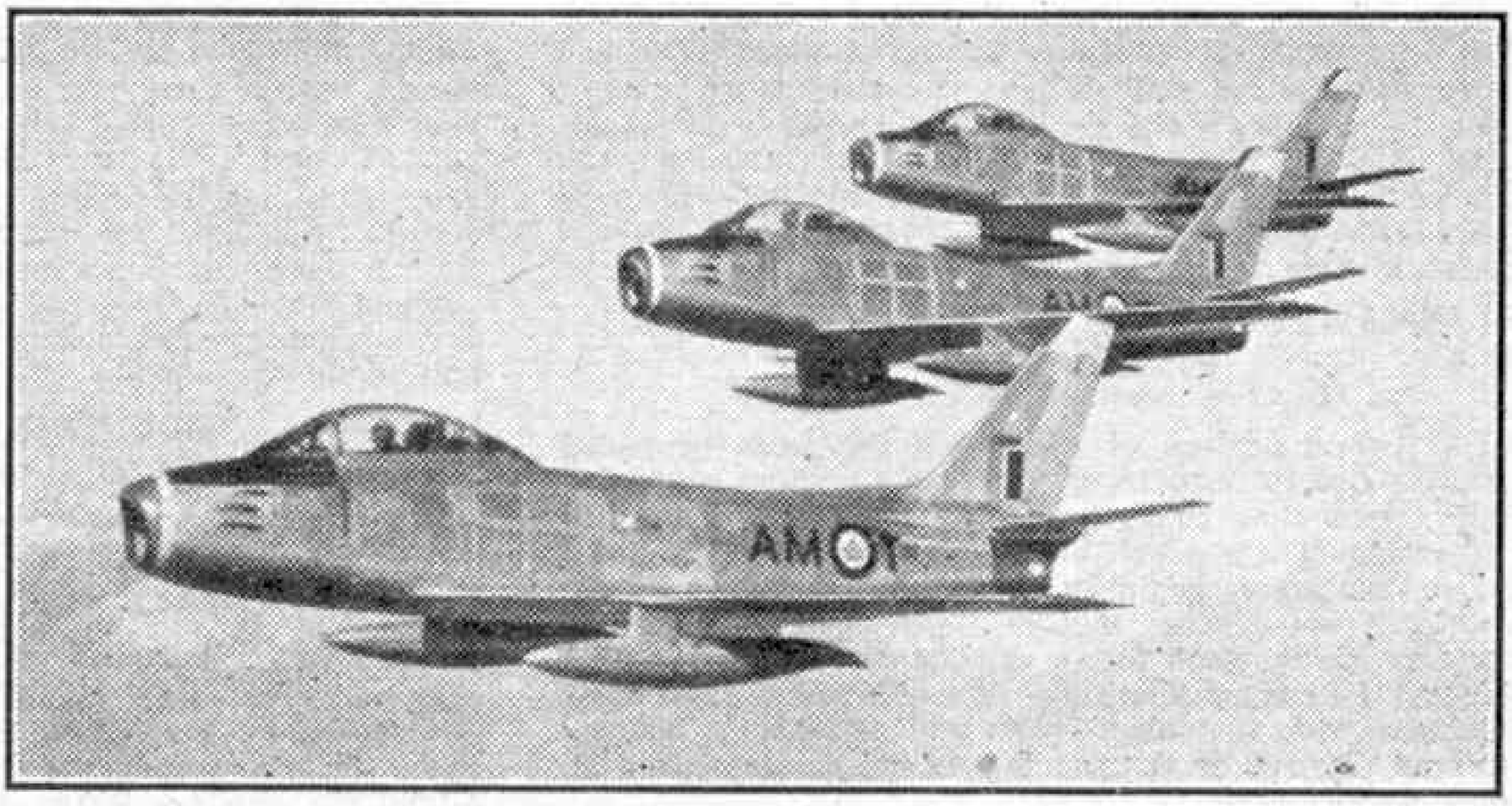
"Sabres" for Fighter Command

Much as we deplore the need for the Royal Air Force to equip with foreign aircraft, the news that Fighter Command is to receive several hundred North American F-86E "Sabres" is very welcome at the present time. Air Ministry policy of making do with "Vampires" and "Meteors" since the war has left the R.A.F. without sweptwing jet fighters until the new Hawker "Hunter" and Supermarine "Swift" become available in 1953–4. The "Sabre" has proved by its victories against superior numbers of MIG-15s in Korea that it can fill the gap admirably until then, and the fact that it holds the World Speed Record leaves little doubt of its fine performance.

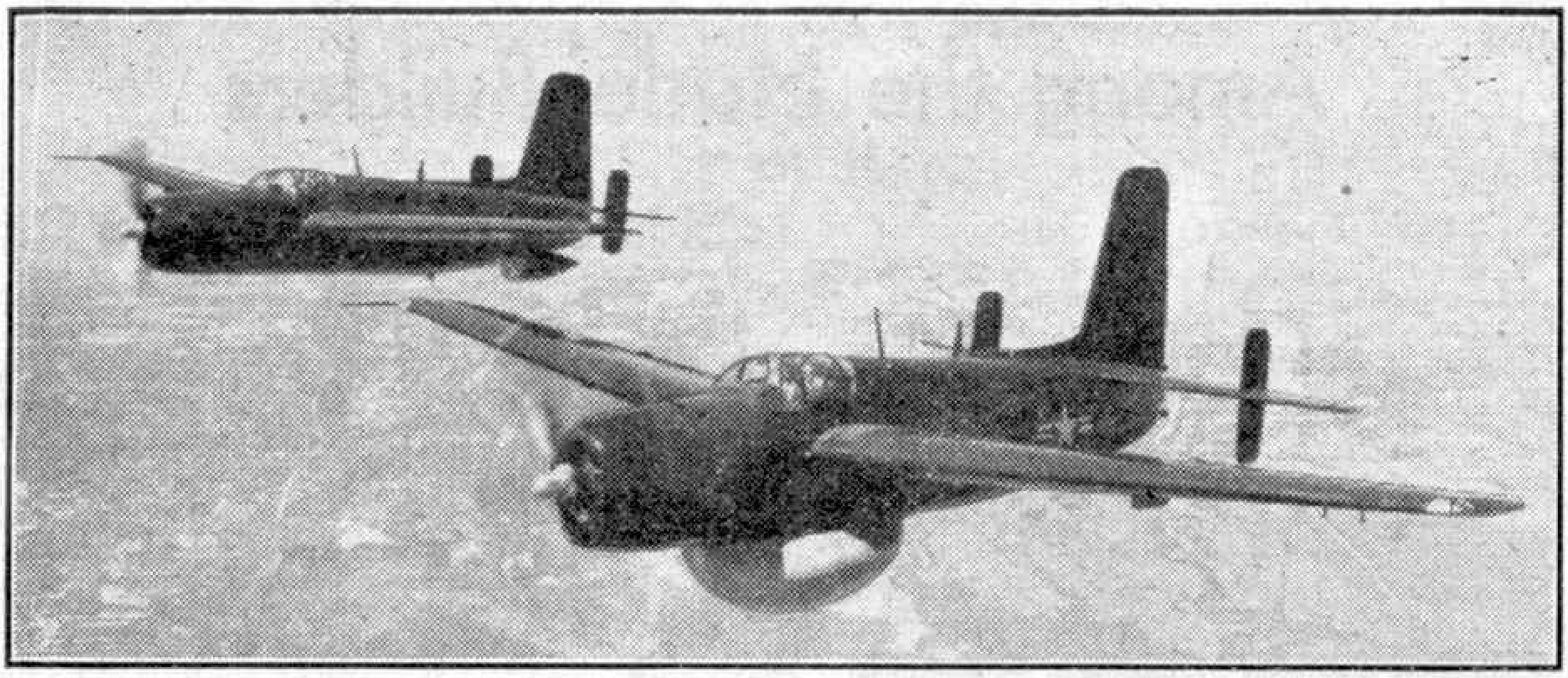
Fighter Command's "Sabres" will be built in Canada by Canadair Ltd., only the engines and certain special equipment coming from the United States. They will be similar to the machines used by the R.C.A.F. Cougar squadron now based in this country and illustrated below, and are of such excellent quality that the U.S.A.F. also have ordered a large number of Canadair-built "Sabres" to supplement American production.

* * * *

The Canadian Minister of Defence Production revealed recently that the cost of one new experimental American high-speed aircraft worked out at 35 dollars an ounce, which is equal to its weight in gold.



Canadian-built F-86 "Sabres" of No. 410 (Cougar) Squadron of the R.C.A.F., stationed at North Luffenham. Photograph by courtesy of the Royal Canadian Air Force.



The two versions of the Grumman "Guardian," that together form a deadly "hunter-killer" team for anti-submarine work. Photograph by courtesy of Grumman Aircraft Engineering Corporation, U.S.A.

A "Breath-Taking" Air Lift!

United Air Lines of America have solved the problem of holding not only their own, but other peoples' breath almost indefinitely.

The breath comes from workers exposed to radio-active compounds at the Puget Sound Navy Yard, Washington. As a safety precaution, routine samples of their breath are sent for laboratory tests at the National Bureau of Standards. The "breathings" are flown by U.A.L. in specially-made vacuum containers of lightweight metal. The supply of these containers is limited, hence the need for air shipment to speed them back and forth.

Hunter-Killer Team

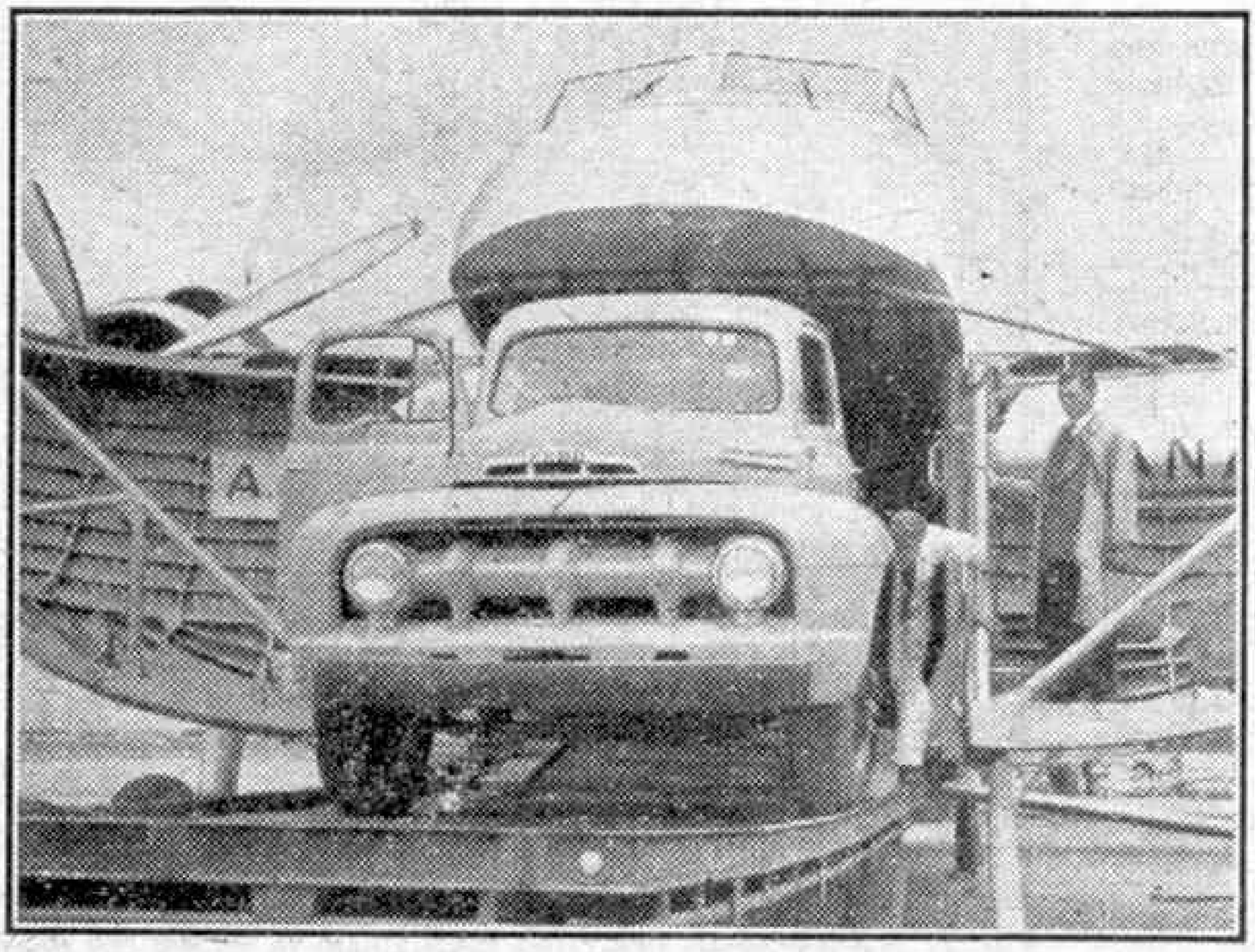
The Grumman AF-2W and AF-2S "Guardians," illustrated above, together form one of the U.S. Navy's latest and most powerful anti-submarine teams. Contrary to the British practise of combining the search and strike roles in one aircraft, like the new Fairey "Gannet," the U.S. Navy fit one 'plane of each team solely as a "hunter," with extensive radar equipment, and the other as a "killer" with a variety of rockets, bombs, mines, torpedoes and other weapons. In this case, the AF-2W in the foreground is the search machine, with a large radar scanner under its fuselage.

The "Guardians" are each powered by a 2,400 h.p. Pratt and Whitney R-2800 engine and have a top speed of about 315 m.p.h. Their span of 60 ft. 8 in. makes them the world's largest single-engined carrier 'planes. In addition to a fixed armament of two 20 mm. cannons, the AF-2S has internal stowage for two 2,000 lb. torpedoes or bombs, with more under its wings. It normally carries a searchlight under its port wing and a small radar scanner under the starboard one.

Porous 'Planes

Research scientists in this country are experimenting with wings which have porous metal surfaces and suck the outside air into the wing during flight. Their object is to remove the shallow layer of turbulent air caused by skin friction, so reducing drag and increasing speed and range.

Suction-wing models on these lines have already been tested in wind tunnels, and sections of such wings have been flown. Full-scale flight tests may be started within a few months, and if successful will enable aircraft of the future to fly a quarter as far again on the same amount of fuel.



This 5-ton Ford truck was loaded into the Bristol "Freighter" with only a few inches to spare, as described on this page.

Flying Fire Engines

Three large fire tenders were recently flown from Britain to Egypt aboard a Bristol "Freighter" of Silver City Airways, at the request of the British Foreign Office. Within 21 hrs. of the charter being arranged, all three tenders had arrived at Blackbushe aerodrome, been loaded aboard the aircraft and were airborne. The "Freighter" flew through the night to reach Cairo next day.

Another big load carried aboard a "Freighter" was the 5-ton Ford truck shown in the bottom photograph on this page being driven aboard one of Australian National Airways' fleet. It fitted into the aircraft with just 3 in. to spare on each side and 4 in. on top. So, having backed it in, the driver had to climb out through the window, as the door could not be opened.

Among the Model-Builders

By "Spanner"

A NEW CLUTCH UNIT

A new clutch unit, for which its designer W. H. Stanton, Coventry, claims several advantages over the more usual type, is shown in Fig. 1. It is suitable

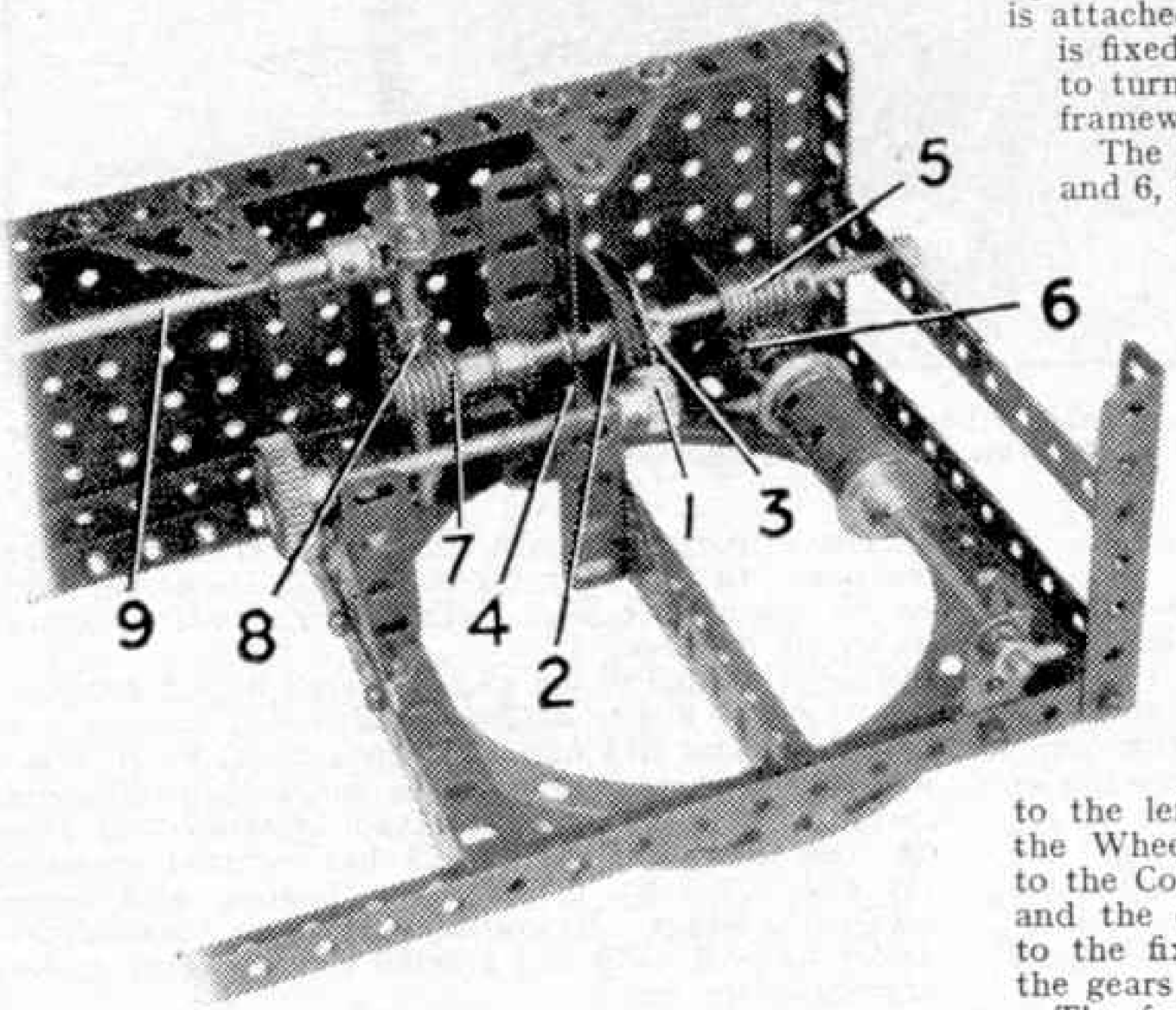


Fig. 1. An unusual clutch mechanism designed by W. H. Stanton, Coventry. It is intended for use with crane winding drums.

for use in connection with crane winding drums, and one of its features is that it eliminates the necessity for a brake to control the drum when the clutch is disengaged.

The main shaft carries a ½" Pinion 1 that engages a 1½" Gear 2 mounted freely on the driven shaft. A Bush Wheel 3 fixed to the shaft, and a 1" loose Pulley with Rubber Ring, are held against the Gear by a Compression Spring fixed between a Collar and the 3½" Angle Girder 4. Washers are inserted to reduce friction.

The winding drum is driven through a Worm 5 and a ½" Pinion 6. The winding Cord is wound on this drum in the direction tending to increase the effectiveness of the Compression Spring.

The withdrawal mechanism consists of a Worm 7 mounted freely on the driven shaft but prevented from rotating by a Bolt, which passes through the slotted hole in a ½" Corner Angle Bracket bolted to the Angle Girder 4. Engaging the Worm is a ½" Pinion fixed to a vertical Rod that terminates in a Double Arm Crank. An End Bearing lock-nutted to the Crank is fixed to a Rod 9, which can be attached to any convenient form of lever mechanism.

A USEFUL REVERSING MECHANISM

I have recently received from A. Roberts, Capetown, details of the interesting reversing mechanism illustrated in Fig. 2. The drive, in both forward and reverse directions, is engaged through friction clutches, so that the take-up is very smooth and steady. Readers will be able to find numerous applications for a mechanism of this kind.

The mechanism is housed in a framework formed by a 3½" and a 3" Strip bolted to the lugs of two 2½" × 1" Double Angle Strips. A 2½" Flat Girder 1 is attached to the 3½" Strip, and a 1½" Flat Girder 2 is fixed to the 3" Strip. The ½" Pinions 3 are free to turn on ¾" Bolts, each of which is fixed to the framework by two nuts.

The output shaft 4 carries two 1½" Contrates 5 and 6, and a Wheel Disc 7 is attached to Contrate 6 by ½" Bolts as shown. The shaft 4 is fitted also with a 1" Pulley 8 and a 57-tooth Gear 9 held in a Socket Coupling, and a second 1" Pulley 10. The Pulleys 8 and 10 are fitted with Rubber Rings. The Contrate 5 and the Pulley 10 are fixed on the shaft 4, and the Socket Coupling with its Pulley and Gear, and the Contrate 6. are freely mounted between the Pulley 10 and a Collar 11.

The drive to the mechanism is taken to the 57-tooth Gear 9. When this is moved to the right it is forced against the Pulley 10 and provides a simple friction drive to the shaft 4. When the Socket Coupling is moved to the left the Pulley 8 engages the Bolt heads in the Wheel Disc 7 and thus forms a friction drive to the Contrate 6. This Contrate is loose on its shaft, and the drive from it is transmitted by Pinions 3 to the fixed Contrate 5, but through the action of the gears the direction of the drive is reversed.

The forward and reverse clutches are engaged by moving a spring-loaded lever through a quadrant. The lever is a 3" Strip freely mounted on a Rod 12 that carries a Coupling 13. A 1" Rod fixed in the Coupling engages the groove in the Socket Coupling. The 3" Strip is held on the Rod 12 between Collars, and a 1½" × ½" Double Angle Strip bolted to the Strip carries two Pivot Bolts 14, each of which is

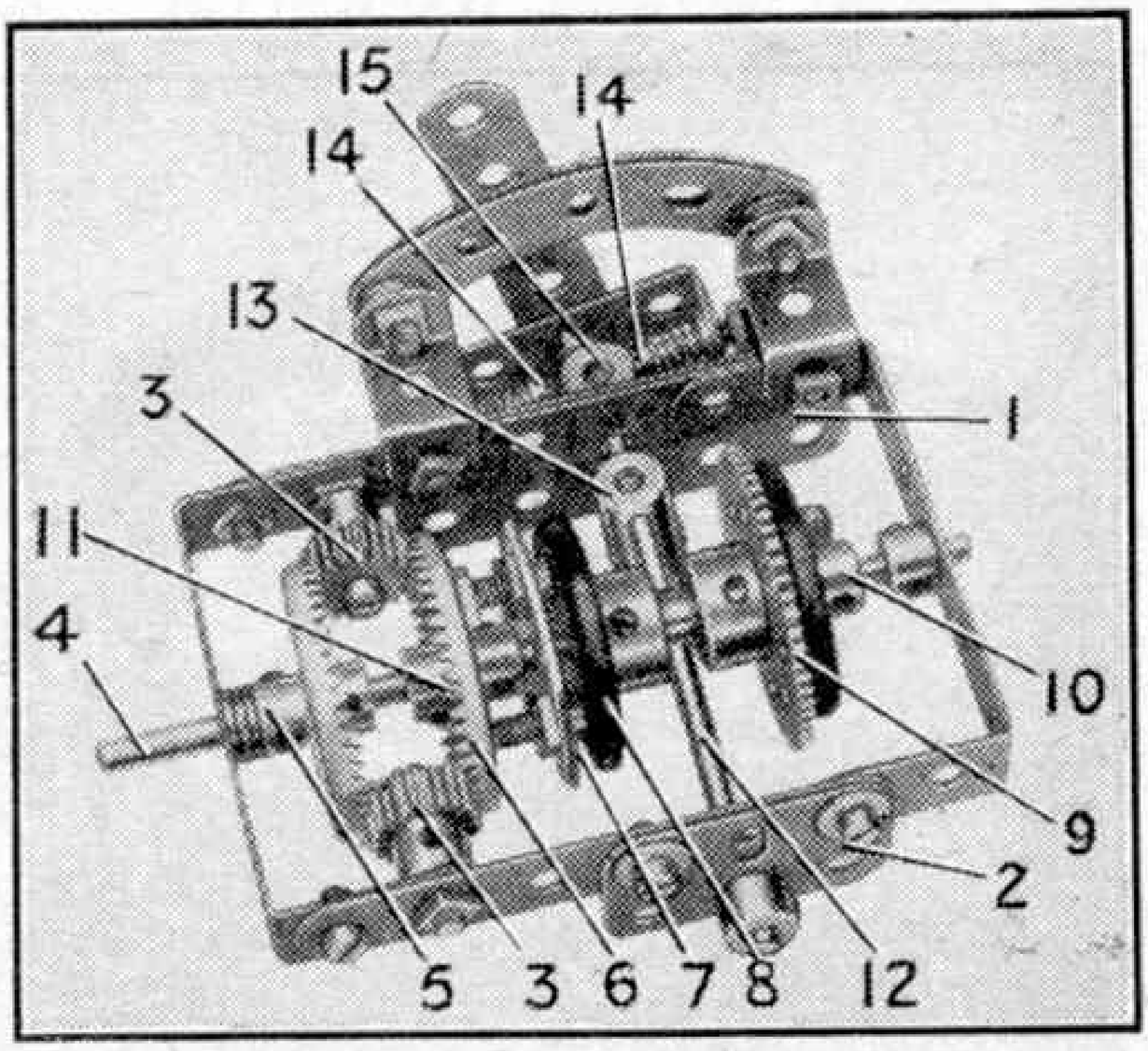


Fig. 2. An ingenious reversing mechanism in which the gears are in constant mesh. Forward and reverse drives are engaged through friction clutches.

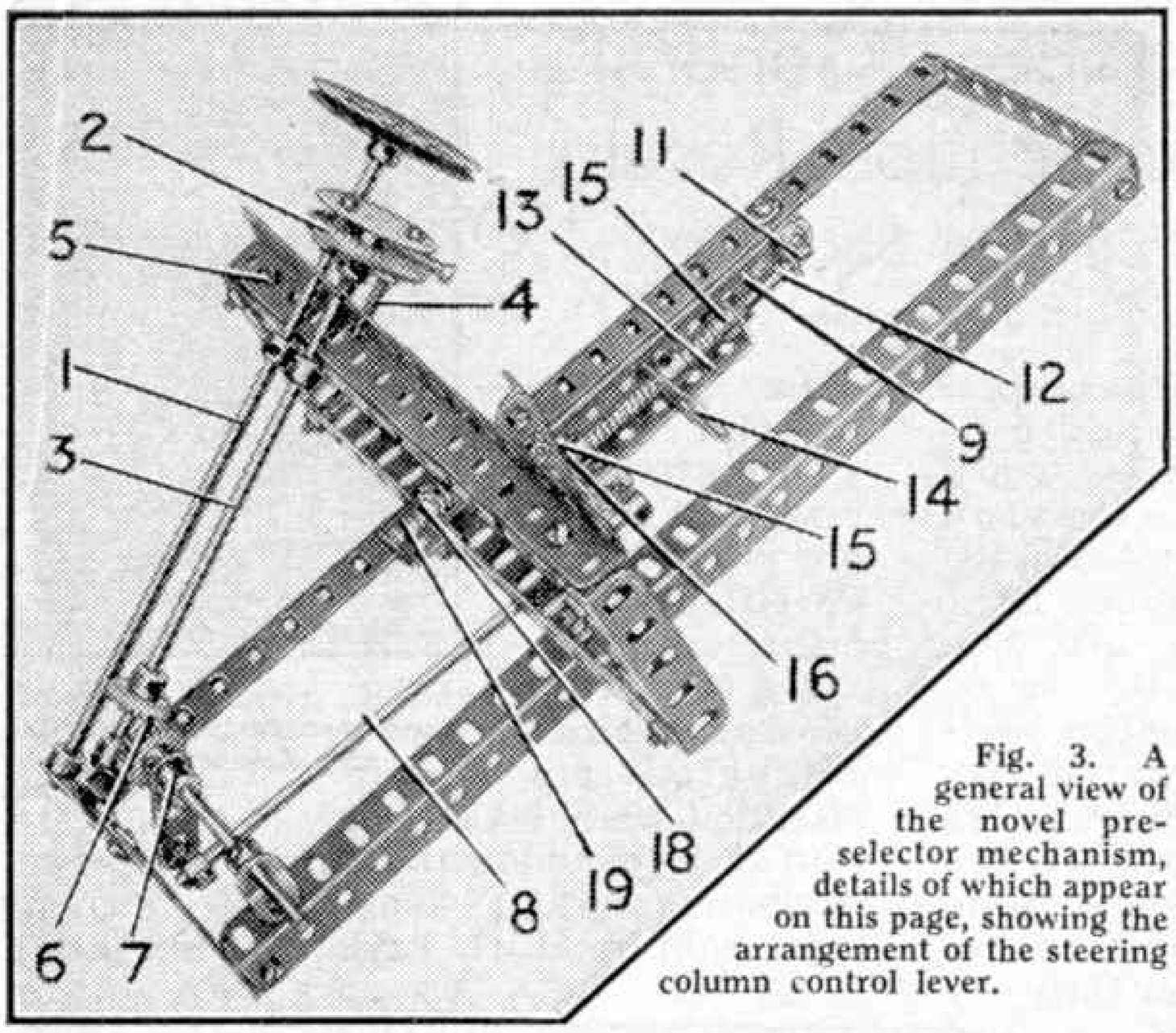


Fig. 3. A general view of the novel pre-selector mechanism, details of which appear on this page, showing the arrangement of the steering column control lever.

fitted with a Compression Spring and held in place by lock-nuts. The heads of the Pivot Bolts bear against a Coupling 15 fixed on Rod 12, and the lever moves in a quadrant formed by two 2½" stepped Curved Strips attached to the framework by Reversed Angle Brackets.

PRE-SELECTOR GEAR CONTROL

Although many fully automatic variable-speed mechanisms have been designed, most cars are still fitted with three or four-speed and reverse gear-boxes controlled directly by the driver, but usually the gear selector lever is now placed on or near the steering column. This arrangement allows the driver to change gear without moving his hand far from the steering wheel, and also provides more room for the front seat passengers than is available on cars with a central gear change. Steering column gear control has been a feature for many years of cars fitted with pre-selector gear-boxes, but a gear-box of this type made with Meccano is rather large for use in a model chassis. The arrangement shown in Figs. 3 and 4 however, is designed to give pre-selective control of an ordinary gear-box with sliding gears.

The steering column 1 passes through a hole in a 1½" Contrate 2, which is freely mounted on the gear selector Rod 3. The lower end of this Rod passes through an Obtuse Angle Bracket bolted to the chassis, and the gear lever is a ¾" Bolt screwed into a Collar fixed on the upper end of the Rod. The Contrate 2 is prevented from turning by a ¾" Bolt 4, and a Compression Spring is fitted on Rod 3 between the Contrate and a bulkhead 5. This spring forces the Contrate against the gear lever, and ensures that it is held in the required position, except when moved to change gear.

A ¾" Contrate is fixed on the lower end of Rod 3, and it engages a ¾" Pinion 6 on a Rod mounted in Angle Brackets bolted to the chassis. A Crank 7 is also fixed on the Rod, and it is linked by a Rod 8 to the gear control mechanism. This mechanism is assembled on a 5½" Angle Girder 9 bolted to the chassis. A Collar 10 is screwed on to a Bolt fixed by a nut in the Girder 9, and an Angle Bracket 11 is attached also to the Girder. A Rod 12 is free to slide in the Collar and Angle Bracket.

Rod 12 is fitted with a 2½" × ½" Double Angle Strip 13, a Crank 14 and two Collars 15. The Crank is fixed on the Rod, but the Collars are loose, and an Angle Bracket 16 bolted to the Double Angle Strip 13 is connected by a Bolt and a Collar to the Rod 8. Two Compression Springs are fitted between Crank 14 and one of the Collars 15, and one Compression Spring between the Crank and the second Collar 15. The Crank is connected to the sliding shaft of the gear-box.

Rod 12 is normally prevented from moving by a Threaded Pin screwed into the Collar 10 so that it holds the Rod in the Collar. A foot pedal 17, consisting of a Crank extended by a 1½" Strip, is fixed on the Threaded Pin, so that by depressing the pedal the Pin is unscrewed, thus releasing the Rod. Two Compression Springs 18 on a 2" Rod held in a Rod and Strip Connector pivoted to the Crank, ensure that the pedal normally tightens the Pin against Rod 12. The free end of the 2" Rod passes through a ½" Reversed Angle Bracket 19.

When the gear lever is moved to select a gear, the action is transmitted by Rod 8 to the Double Angle Strip 13, and as Rod 12 is held by the Threaded Pin the Double Angle Strip is moved against the pressure of the Compression Springs on either side of Crank 14. When Rod 12 is released by depressing the pedal, the Compression Springs take effect and move the Rod and Crank, thus changing gear. The gear change cannot take place until the pedal is depressed, so that one gear can be selected while another is actually engaged. A card marked to indicate the positions of the lever for the respective gears can be attached by ½" Bolts to the Contrate 2.

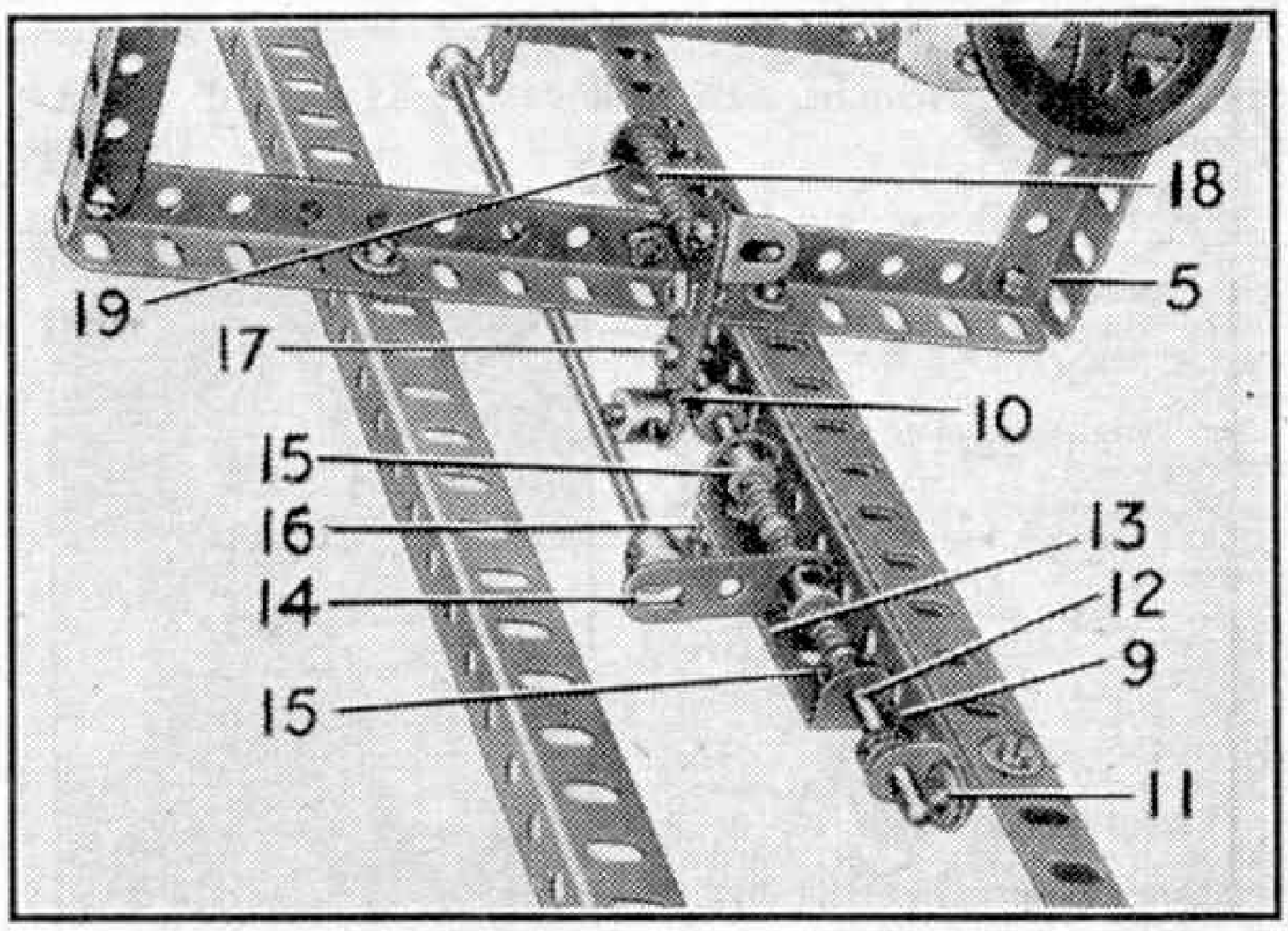


Fig. 4. This close-up view of the pre-selector mechanism shows the positions of the control springs and the release pedal.

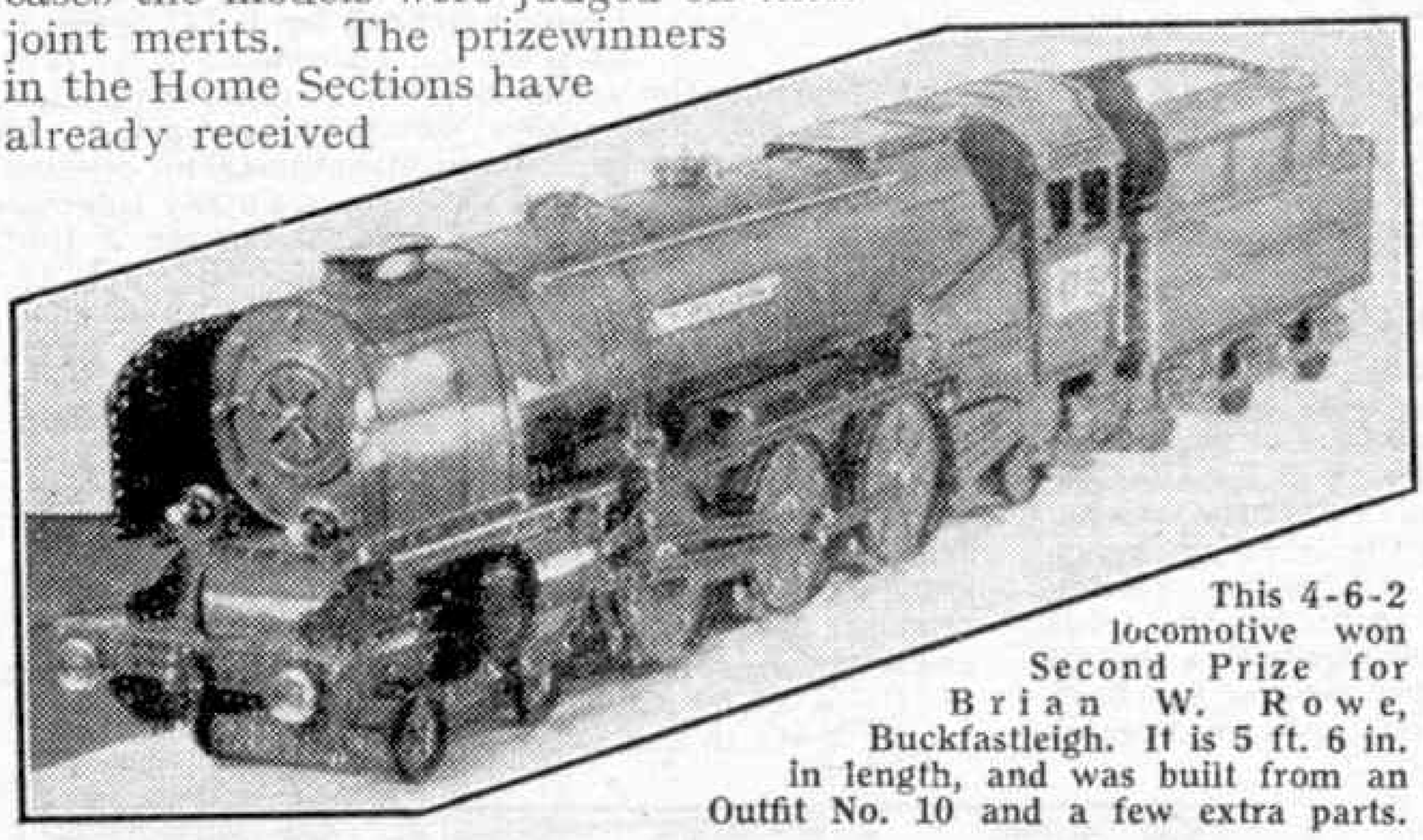
D. W. Swindells, Leeds, one of the prize-winners in our October "General" Competition.

October "General" Competition Results

(Home Section)

By "Spanner"

THE general model-building competition announced in the October 1951 issue of the "*M. M.*" was extremely well supported by model-builders of all ages, and the standard of the entries was very high. Several competitors entered more than one model, and in these cases the models were judged on their joint merits. The prizewinners in the Home Sections have already received their awards, which were allocated as follows:

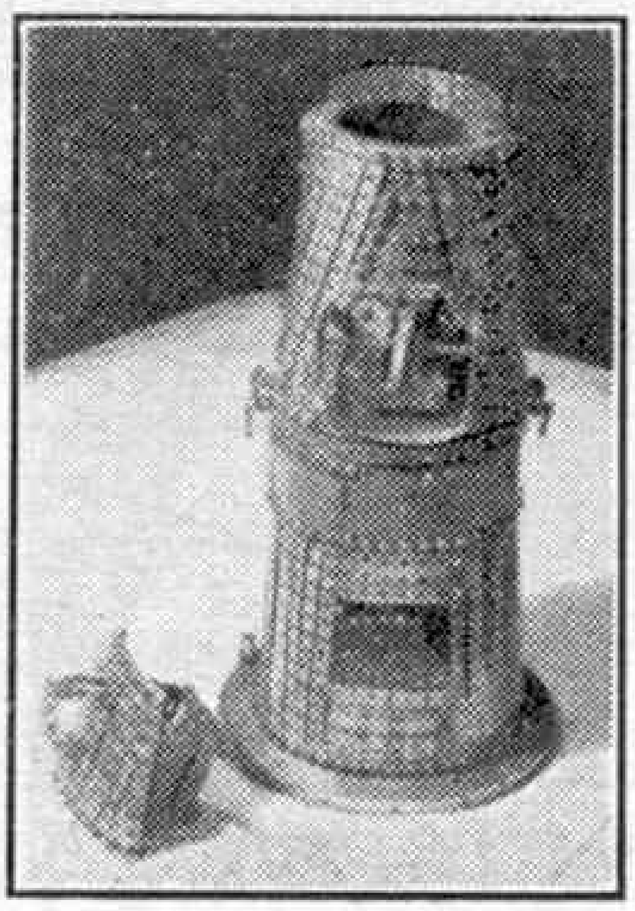


This 4-6-2 locomotive won Second Prize for Brian W. Rowe, Buckfastleigh. It is 5 ft. 6 in. in length, and was built from an Outfit No. 10 and a few extra parts.

First Prize, Cheque for £3/3/–: H. H. Taylor, Huddersfield; Second Prize, Cheque for £2/2/–: B. W. Rowe, Buckfastleigh; Third Prize, Cheque for £1/1/–: R. J. Hilling, Ipswich.

Ten Prizes Each of 10/6: D. James, Barking; E. L. Wilkes, Peterborough; D. W. Swindells, Leeds 12; A. H. Spinks, Liverpool 16; H. W. Henry, Rochester; A. Lowrie, Stapleford; A. C. Rose, Birmingham 23; N. Burrows, Leiston; T. Davey, Plympton; J. M. Henk, Newcastle.

Ten Prizes Each of 5/–: L. W. Chitty, Edgware; M. E. Boll, Rowney Green; D. W. Evans, Kingskerswell; I. Pilkington, Liverpool 16; A. J. Wilson, Droylsden; A. H. Vincent, Horsham; D. Franks, Grimsby; D. Humphries, Cheltenham; R. M. Minshull, Macclesfield; J. Sloan, Lockerbie.



A potato peeling machine was the novel entry of R. J. Hilling, Ipswich.

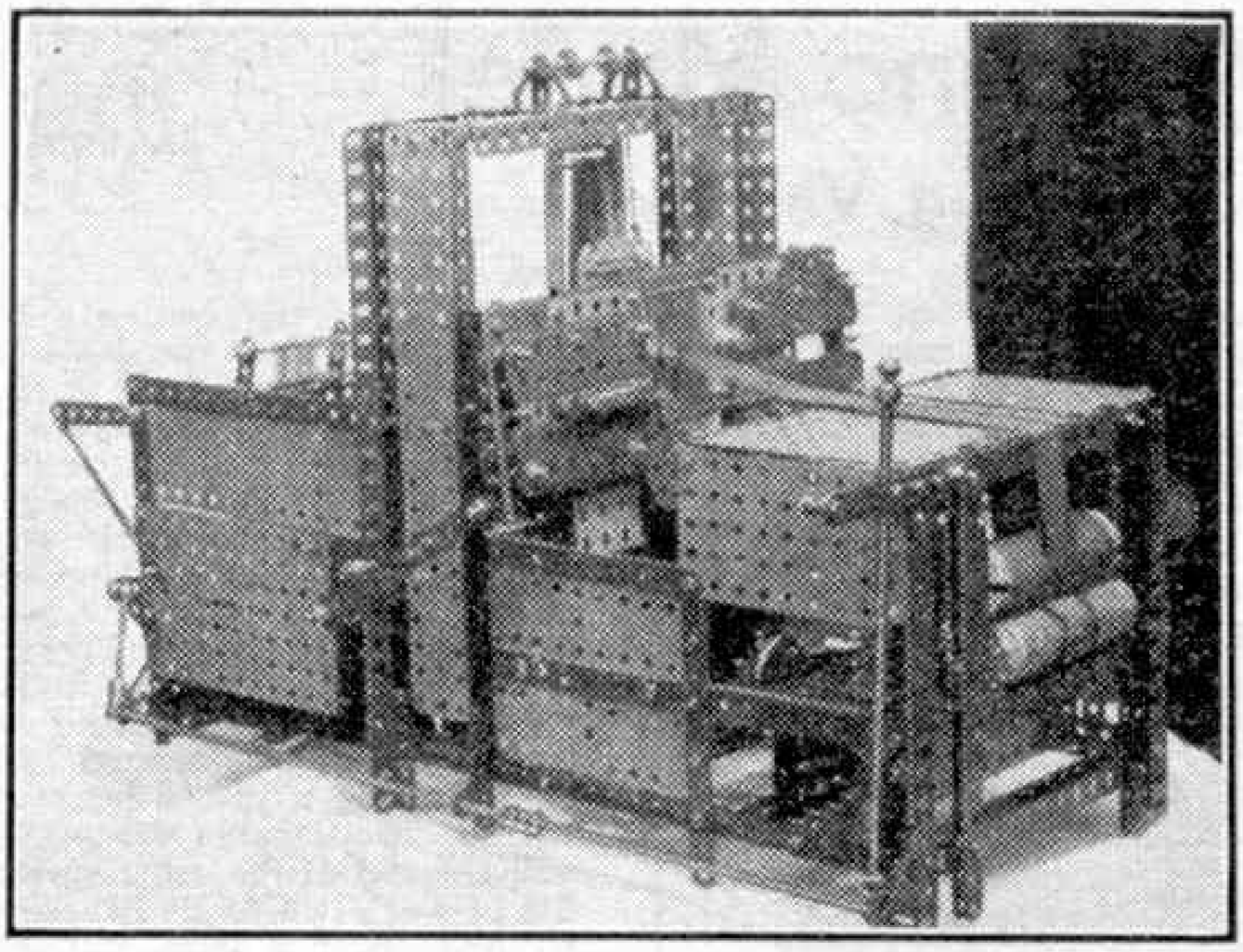
A. H. Spinks, Liverpool, another successful competitor in the October contest.

In addition to the above a number of competitors received Certificates of Merit.

The first models that attracted my attention when I started to examine the entries were two fascinating working looms of quite different types built by H. H. Taylor, Huddersfield. As these are particularly good examples of the actual looms they represent, I am illustrating both of them on the next page. The first is a ribbon loom, which is capable of producing ribbon of really excellent quality at a very high speed. It is operated by an E20R Electric Motor, which drives the mechanism to give a weaving rate of 70 picks per minute. As Meccano Healds were not available, Taylor had to use some specially made healds in the model, but standard Meccano Healds could be used just as well.

The other loom is a most attractive cloth weaving type that can produce material in any one of 12 different patterns simply by setting a series of Pulleys which control the movements of the heald frames to a pre-determined arrangement. This model is built entirely from standard Meccano parts.

These two models alone would well have merited a high place in the prize list,



This fine ribbon loom, designed and built by H. H. Taylor, Huddersfield, was one of three splendid models with which he won First Prize.

but with them Taylor sent also an intriguing model pill counting and packing machine! This consists mainly of a storage hopper and chute for the pills, and an endless belt that feeds the empty boxes on to a revolving table. When the machine is in motion the belt feeds a box on to the table, 10 pills are dropped into it, and the table then revolves a quarter of a revolution and brings another empty box into position under the discharge trap of the chute down which the pills are delivered from the hopper. As each box is filled it is ejected from the table and pushed down a runway.

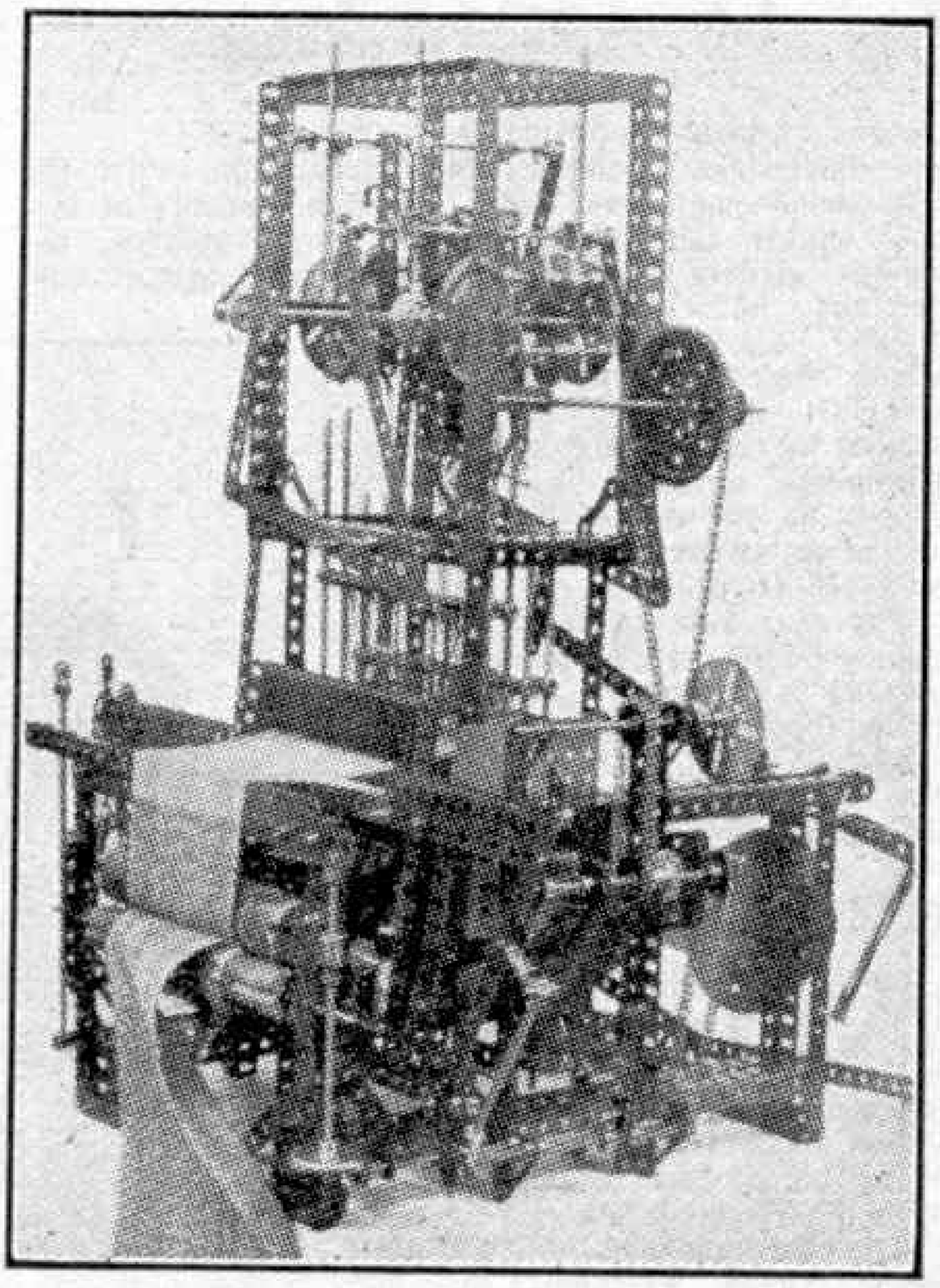
D. W. Evans, Kingskerswell, whose name also appears in the prize list.

It is interesting to note that other competitors submitted model looms in this contest, among them being a very good shuttle loom sent by A. H. Spinks, Liverpool 16.

Second Prize was awarded to Mr. B. W. Rowe, Buckfastleigh, S. Devon, who built the fine locomotive illustrated on the opposite page. This model is based on a 4–6–2 Midland Region locomotive, and readers will note the style of footplating typical of some of the later engines of this class. The smoke deflectors, double chimney and Belpaire fire-box of the prototype are well reproduced in the model.

I have often recommended model-builders to seek original subjects for their competition models, and a potato peeling machine built by R. J. Hilling, Ipswich, provides a good example of the success often attained by a small well constructed model of an unusual type. Hilling was awarded Third Prize for this model, which is operated by an Electric Motor concealed in the base and is fitted with unloading and waste collection chutes.

Among other interesting entries was an attractive suspended railway, which was sent by E. L. Wilkes, Peterborough. This novel model was based on an actual railway that Wilkes saw in Germany while on holiday. It consists of two cars, one equipped with a Clockwork Motor. Each car is slung from a single overhead rail by means of two arms fitted with Pulleys, one of the Pulleys being driven by the Motor in the power driven car, which forms the locomotive unit.



A 4-shaft loom that will weave 12 different patterns. This model also is the work of H. H. Taylor.

New Meccano Model

Road Sweeping Vehicle

THE mechanical road sweeper that forms the subject of our new model this month is built from the contents of a Meccano Outfit No. 8. It is fitted with a compact worm reduction unit in the rear axle, and also includes a neat belt drive that allows the height of the sweeping brushes to be adjusted to suit varying road surfaces.

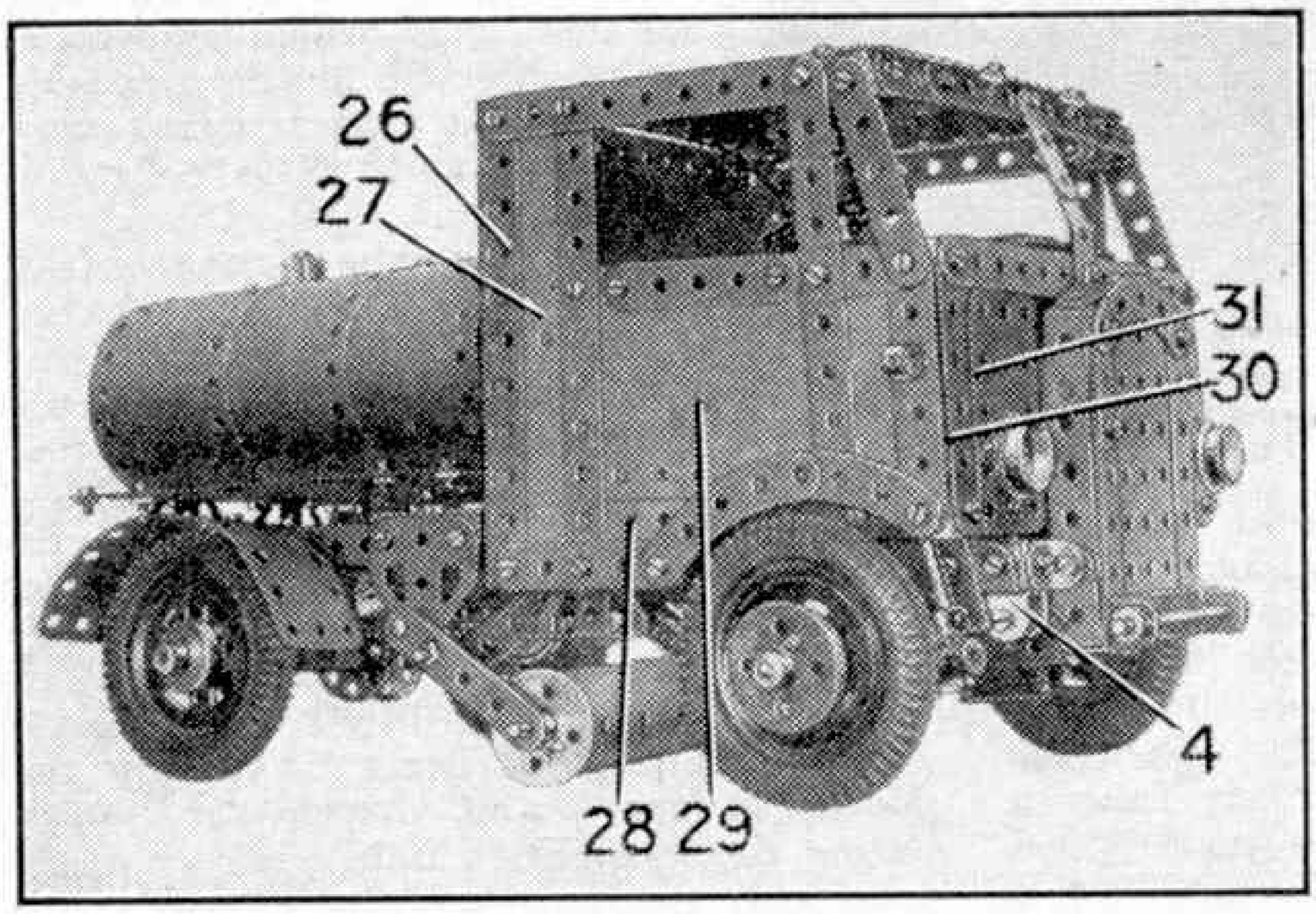


Fig. 1. A general view of the Road Sweeper showing details of the cab construction.

Construction of the model should begin with the chassis side-members, each of which consists of two 12½" Angle Girders connected by Fishplates, the channel girders thus formed being joined at each end by two 3½" × ½" Double Angle Strips. The power unit is an E20R Electric Motor, which is attached by Fishplates to the chassis in the position shown. The Motor is enclosed by Flexible Plates as shown in Fig. 2, and one of its switch arms is extended by a 1½" Strip 25.

The rear axle casing is built in two sections, each consisting of two 2½" × ½" Double Angle Strips bolted between a Wheel Disc and a Bush Wheel 1. The Bush Wheels are connected by two Double Brackets, one of which is fitted with a Fishplate and the other with a ½" Reversed Angle Bracket 2. A divided axle is used and is made from a 4" Rod and a 3½" Rod. The 4" Rod is free to turn in the casing, and carries a ½" Pinion 3. The 3½" Rod however, is fixed in the casing by the Bush Wheel, and its road wheel runs freely on it, but is held in place by a ¾" Flanged Wheel.

The rear axle is bolted to Double Bent Strips attached to leaf springs. The parts forming each spring are a 4½", a 3½", and a 2½" Strip, and the assembly is fitted at one end with an Angle Bracket. The Bracket is pivoted on the shank of a ⅜" Bolt fixed to the chassis, and the free end of the spring is passed between the lugs of a Double Bracket attached to the chassis by a ¾" Bolt and two nuts.

The front axle consists of two 5½" Strips bolted to springs made from 3½" and 2½" Strips. An Angle Bracket is bolted through its round hole to the rear end of each spring, and a bolt passed through the slotted hole is lock-nutted to the chassis. The forward end of one spring is placed between the lugs of a Double Bracket 4, and the end of the other spring fits between two Angle Brackets 5. A ¾" Bolt is fixed through the lugs of Double Bracket 4.

The front wheels run freely on 1½" Rods fixed in Couplings 6, and 1⅛" Flanged Wheels are used to hold them in place. The Couplings 6 are fixed on 1½" Rods passed through the front axle and ½" Reversed Angle Brackets 7, and each Rod is fitted at its lower end with a Crank 8. The Cranks are connected by a lock-nutted 5½" Strip. The steering column is mounted in a 1½" × ½" Double Angle Strip 9 bolted to the chassis, and a Coupling on the lower end of the Rod is connected to one of the Cranks 8 by a 5½" Strip 10.

The drive from the Motor is taken through a ½" Pinion and a 57-tooth Gear to a Rod 11 mounted in the Motor side-plates. This Rod carries at its lower end a ½" Pinion 12 engaging a 1½" Contrate 13. The Contrate is fixed on a Rod supported in two 3½" × ½" Double Angle Strips 14, and the Rod

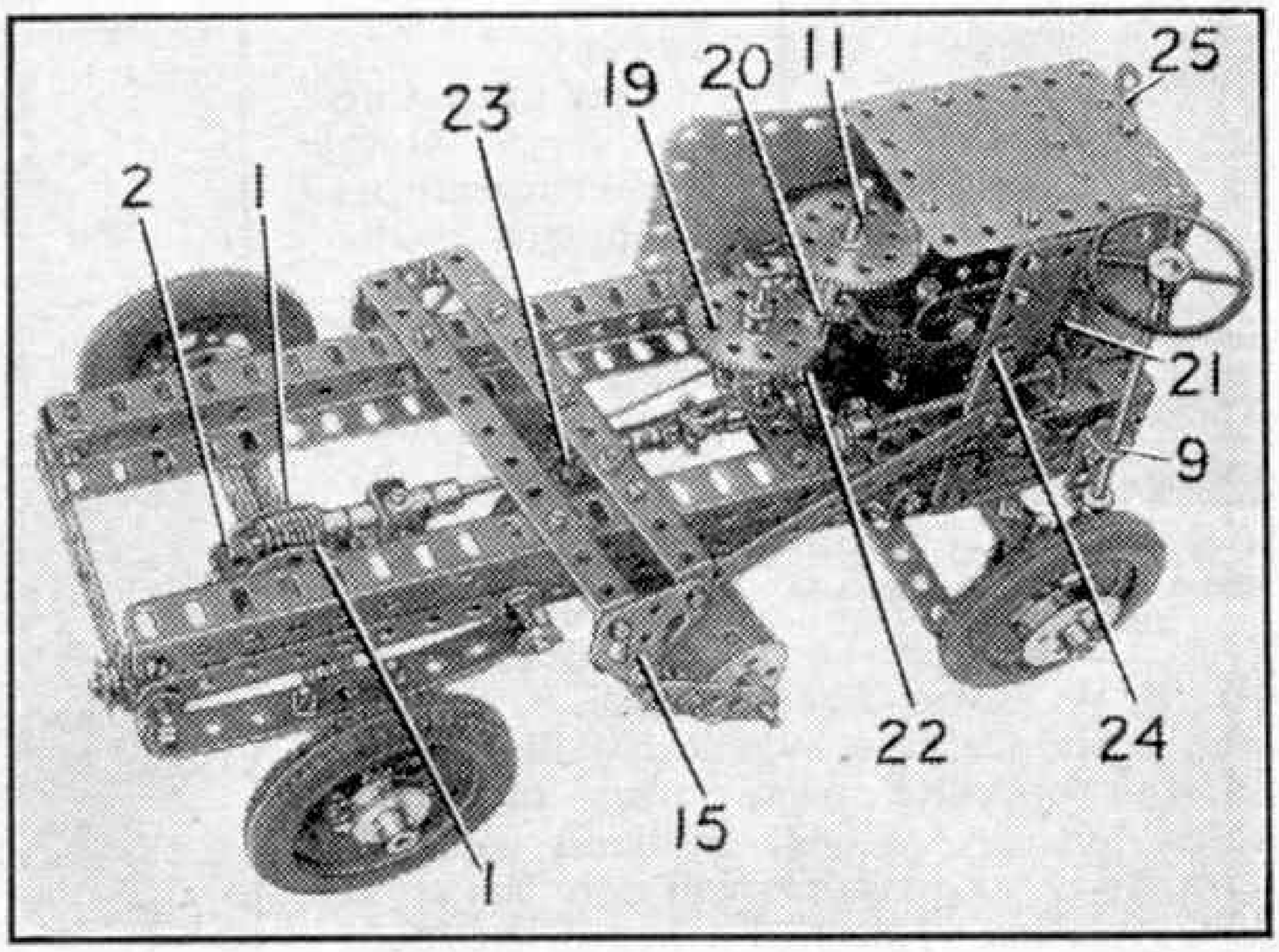


Fig. 2. The Road Sweeper with cab and tank removed to show the gearing and the method of mounting the brushes.

is fitted with a universal coupling assembled from a Swivel Bearing and a small Fork Piece. This coupling is connected by a Rod to a second universal coupling made from a Swivel Bearing and a large Fork Piece, and this is fixed on a 1½" Rod supported in the Reversed Angle Bracket 2 and the Fishplate fixed to the rear axle. A Worm on the 1½" Rod engages the ½" Pinion 3.

The sweeping brushes are represented by Cylinders fitted over 1½" Flanged Wheels and fixed on a 6½" Rod. A small gap is left between the Cylinders, and a 1" Pulley is fixed so that its rim coincides with the gap. The axle of the brush is supported in pivoted arms formed by 2½" Strips held by Threaded Pins to Couplings 15. These Couplings are fixed on a 6½" Rod that carries also another Coupling 16 and two 1" loose Pulleys 17 placed between Collars. The 6½" Rod is carried in Flat Trunnions bolted to 5½" × ½" Double Angle Strips fixed at an angle across the chassis.

The brushes are driven from a ½" Pulley 18 fixed on a Rod supported in a 3½" Strip and a Double Bent Strip bolted across the chassis. The upper end of the Rod carries a 57-tooth Gear 19, which can be raised by means of a lever 21 to mesh with a ½" Pinion 20. The lever is a 2" Strip fixed between nuts on a 3½" Screwed Rod mounted in a 2½" × ½" Double Angle Strip bolted to the chassis. A Rod and Strip Connector 22 is also clamped between nuts on the Screwed Rod, and a 1" Rod in the Rod and Strip Connector engages underneath the 57-tooth Gear 19. A Driving Band from Pulley 18 passes over two ½" loose Pulleys 23 and the 1" loose Pulleys 17, and is then passed round the 1" Pulley on the brush axle. The Pulleys 23 are mounted on a 1" Rod passed through Angle Brackets bolted to one of the 5½" × ½" Double Angle Strips.

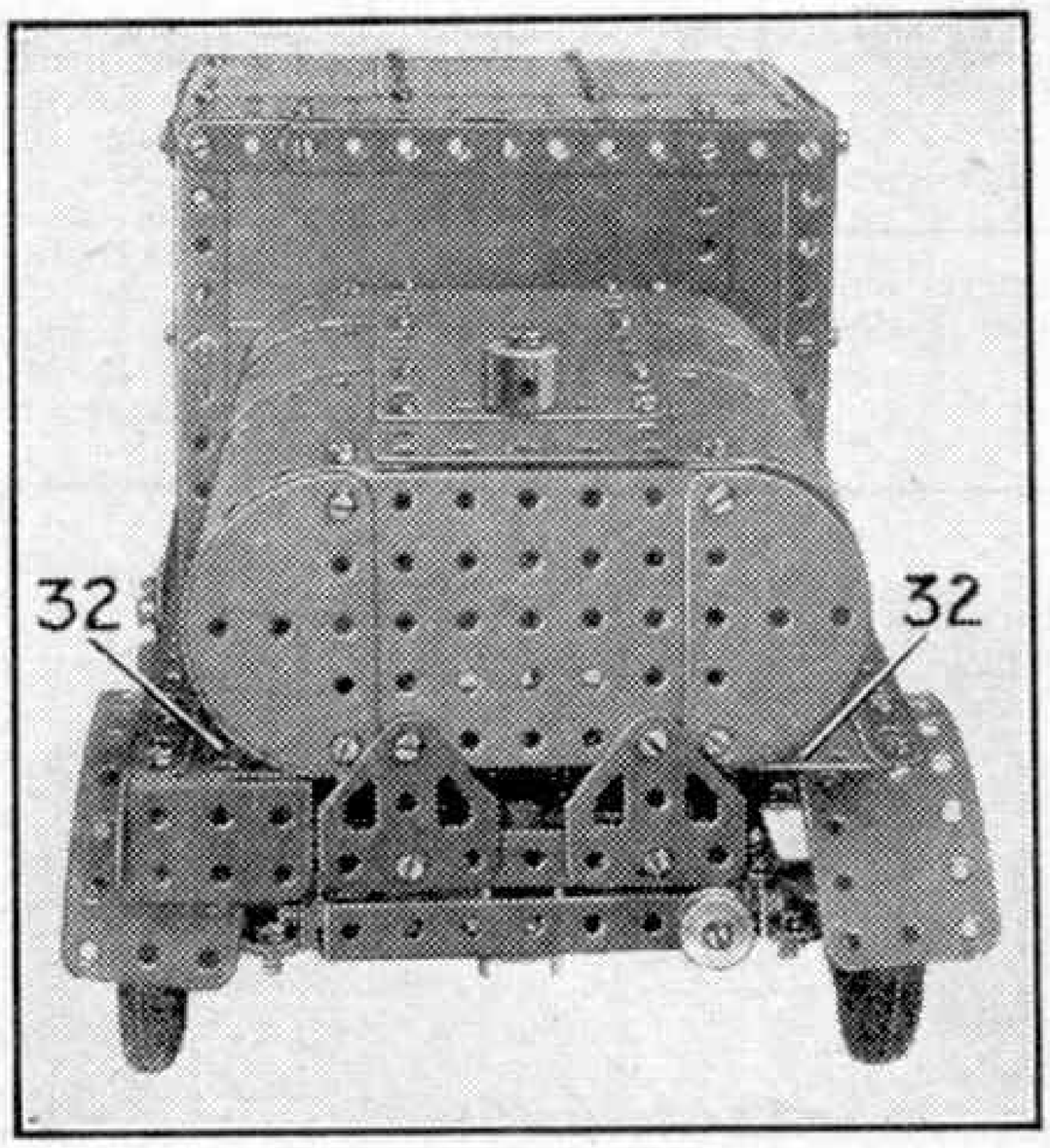


Fig. 4. This rear view shows the tank supporting brackets and details of the tank ends.

The brush can be raised or lowered from the ground by moving a lever formed by a 3" Strip 24. The Strip is lock-nutted to the chassis and operates in a quadrant made from two 2½" Stepped Curved Strips. A 5½" Strip lock-nutted to the Strip 24 is pivoted on a Pivot Bolt fixed in Coupling 16.

The driver's cab is built up on a 5½" Angle Girder bolted across the chassis, and on a strip made from two 5½" Strips overlapped nine holes and fixed to the upper 3½" × ½" Double Angle Strip at the front of the chassis. The back of the cab is filled in by two

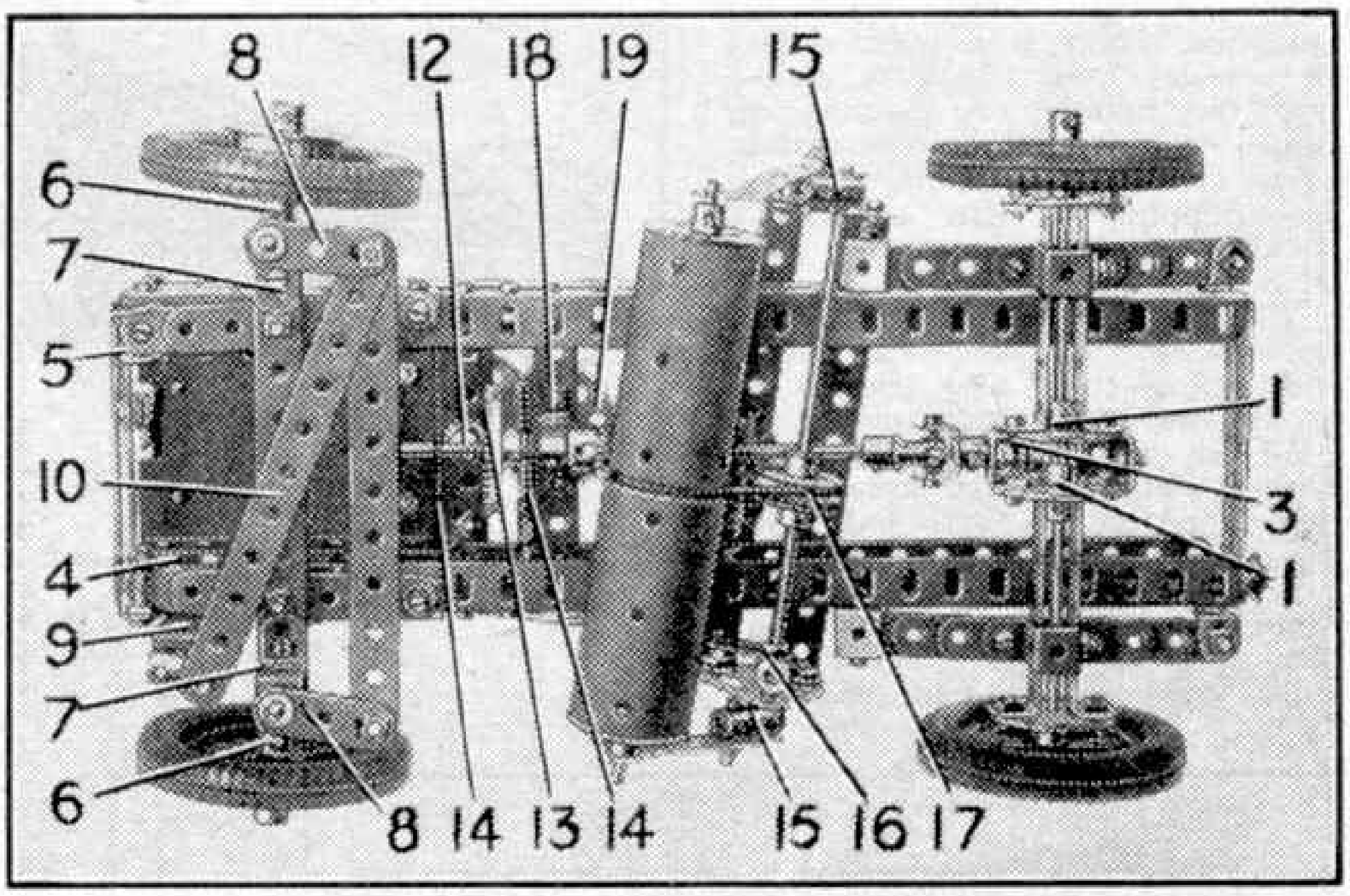


Fig. 3. An underneath view of the model showing the transmission and the steering mechanism.

5½" × 2½" and two 2½" × 2½" Flexible Plates bolted together and fixed to the 5½" Angle Girder, and edged on each side by a 5½" Angle Girder 26.

The two sides are identical in construction. Each consists of a 5½" × 1½" Flexible Plate 27, a 2½" × 2½" Flexible Plate 28, and a 4½" × 2½" Flexible Plate 29. These Plates are edged by Strips of various sizes as shown in Fig. 1. The front of the cab is made from a vertical 3" Strip 30 on each side connected by a 5½" and a 1½" Strip joined together, and is partly filled in by 2½" × 1½" Flexible Plates 31.

The radiator is a 3½" × 2½" Flanged Plate edged by Strips, Double Angle Strips, 1" × 1" Angle Brackets and a 2½" stepped Curved Strip as shown. It is attached to the chassis by Angle Brackets. The cab roof is made from three 4½" × 2½" Flexible Plates and two 5½" × 1½" Flexible Plates, and is fixed to Angle Brackets.

The sides of the water tank are 5½" × 2½" Flexible Plates curved to the same radius as Semi-Circular Plates. The top is made from a 5½" × 2½" Flexible Plate and a 2½" × 1½" Flexible Plate. The construction of the rear end is shown in Fig. 4, and the front end is similar except that the 3½" × 2½" Flanged Plate is extended by Face Plates in place of Semi-Circular Plates. The tank is provided on each side with a platform 32 made from 5½" × 2½" Flexible Plates edged by Strips. The front of the tank is supported by Trunnions bolted to the chassis, and the rear is fixed to Flat Trunnions as shown in Fig. 4.

The rear mudguards are made from 5½" 2½" Flexible Plates curved to fit closely round the Tyres on the rear wheels. The Flexible Plates are bolted to a 5½" Strip fixed across the chassis immediately above the rear axle.

When the sweeping brush is working the centre lever should be adjusted so that the brush just clears the ground. The arrangement of the Driving Band and Pulleys allows the height of the brush to be altered without affecting the drive in any way, so that the brush can be adjusted while the drive is engaged.

What Shall I Build Next?

Transport Vehicles Make Fine Subjects

THE many different types of vehicles used for road transport provide for Meccano model-builders some of their most interesting subjects. There is a wide variety of vehicles from which to choose and the builder can confine his model either to the main essentials, or he can thoroughly enjoy himself in equipping it with a mass of detail work, according to the parts at his disposal.

Illustrations of all kinds of vehicles are easy to obtain, and in most cases it is also possible to study the actual vehicles on the road, so that model-builders can readily obtain all the information they need on which to base their models.

Some fine models of road transport vehicles are illustrated on this and the opposite page. These were built by entrants in Meccano competitions, and although some of them do not represent strictly up-to-date types, they do give some indication of the wide scope there is in this branch of model-building.

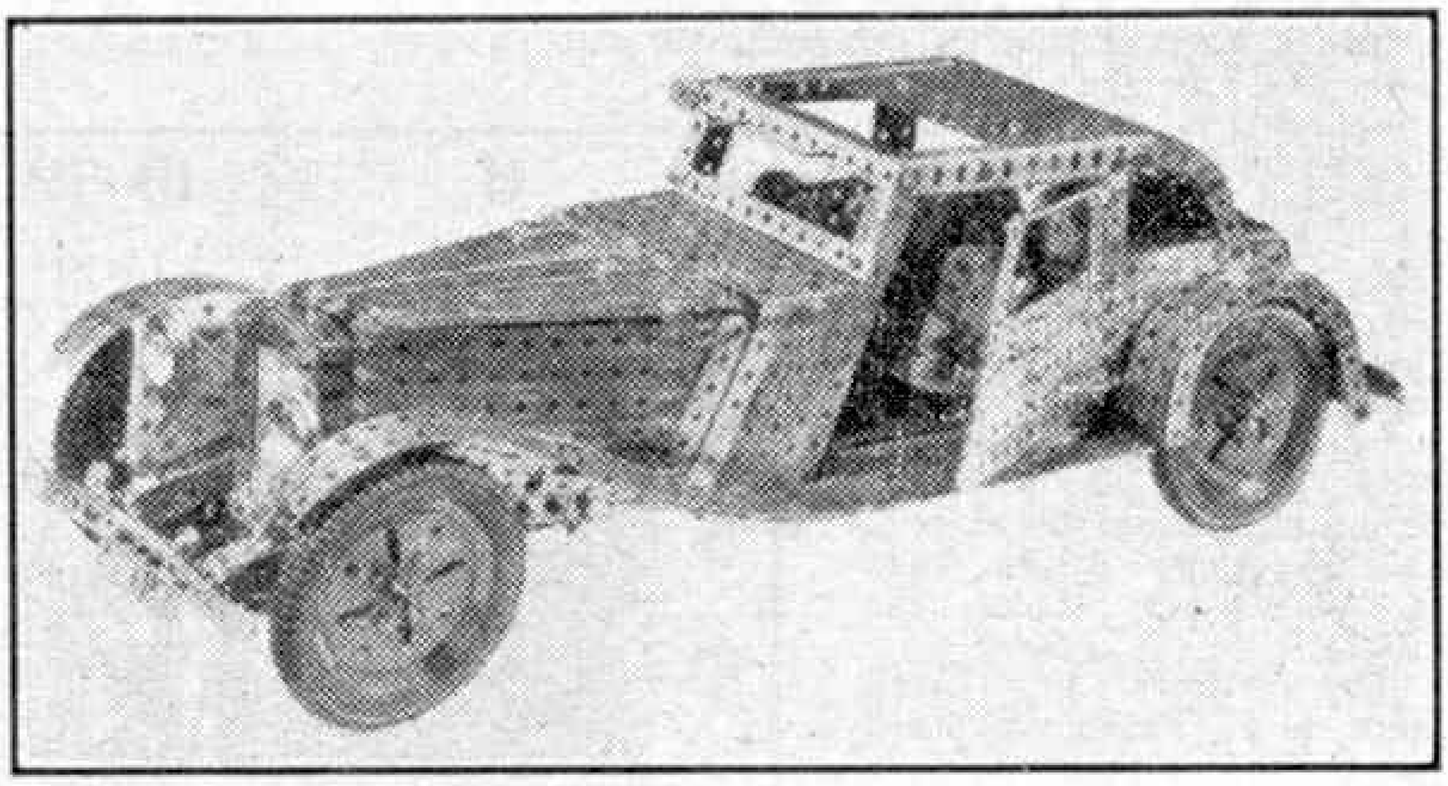


Fig. 1. A detailed model sports saloon car built by L. F. Stiles, Chippenham.

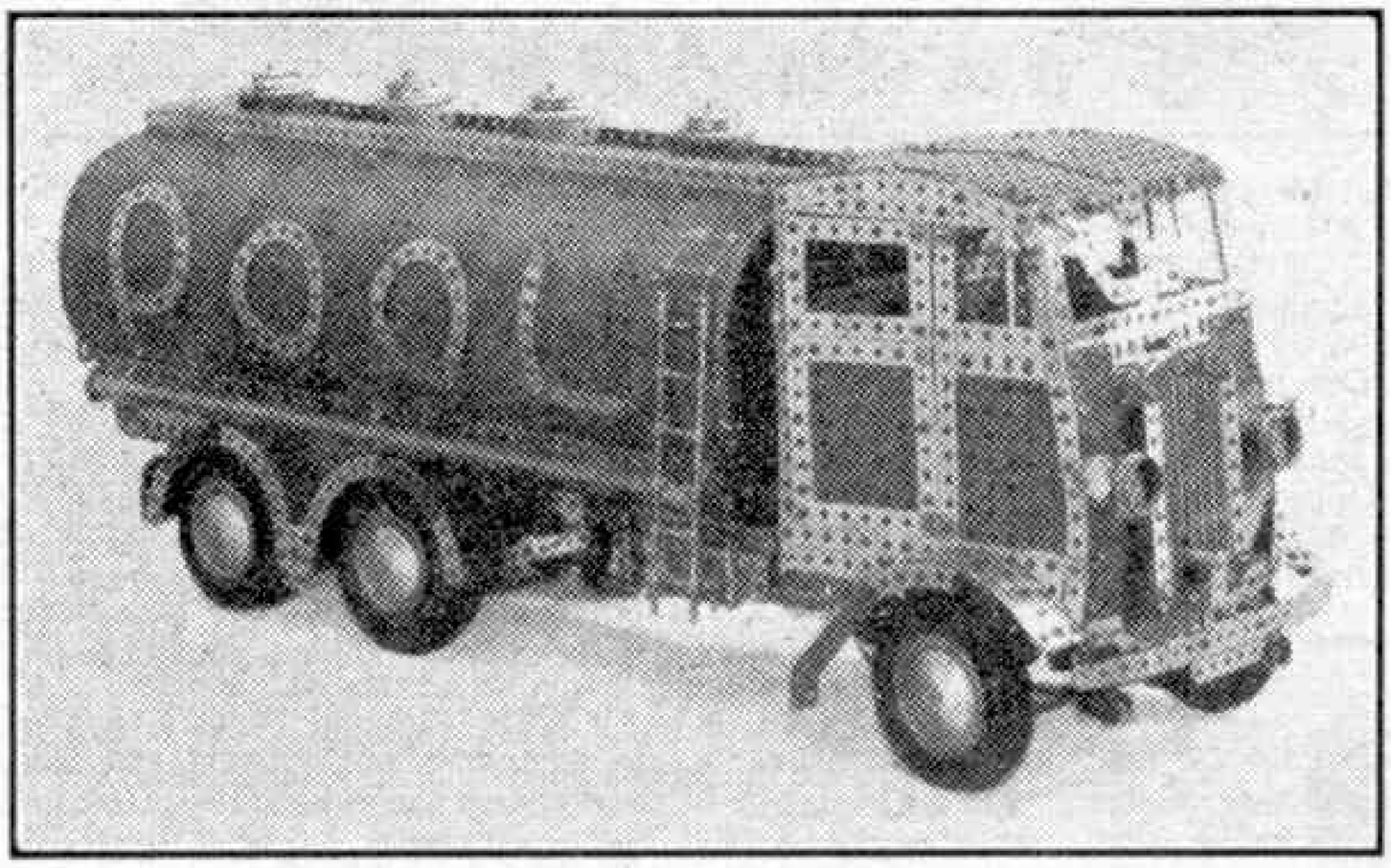


Fig. 2. Petrol tank lorries provide plenty of interesting features for the model-builder. This realistic example was built by John Mathews, Filongley, nr. Coventry.

The sports car built by A. W. Cooper, Southampton, which is seen in Fig. 3, is driven by a Clockwork Motor, the drive being transmitted through Sprocket and Chain to the rear axle. The neat radiator is built from two 3" Angle Girders, joined at the top by two 2½" Curved Strips, and is provided with a cooling surface constructed from 2½" Strips.

The curvature of the bonnet is achieved with Flat Girders and Strips bent slightly, and I think it would be better to use Flexible Plates if these are available. A folding hood is provided, and head lamps are represented by two Chimney Adaptors, while the side lamps are ½" Pulleys fixed by Bolts to ½" × ½" Angle Brackets.

The well proportioned model of a sports saloon car shown in Fig. 1 was constructed by L. Stiles, Chippenham, who succeeded in obtaining a very realistic effect. The front mudguards and the running boards are made from four 12½" Strips curved to shape. The rear mudguards are also made from Strips edged with three 2½" Curved Strips. The front wheels are steerable and all four wheels are equipped with internal expanding brakes operated by a foot pedal. Power is supplied by an Electric Motor, which drives the rear axle through a differential.

Interesting points are the use of Spring Cord to represent the cooling surface of the radiator, and the hinged bonnet. To form the bonnet four 5½" Strips are joined to two 2½" Strips and are then hinged to

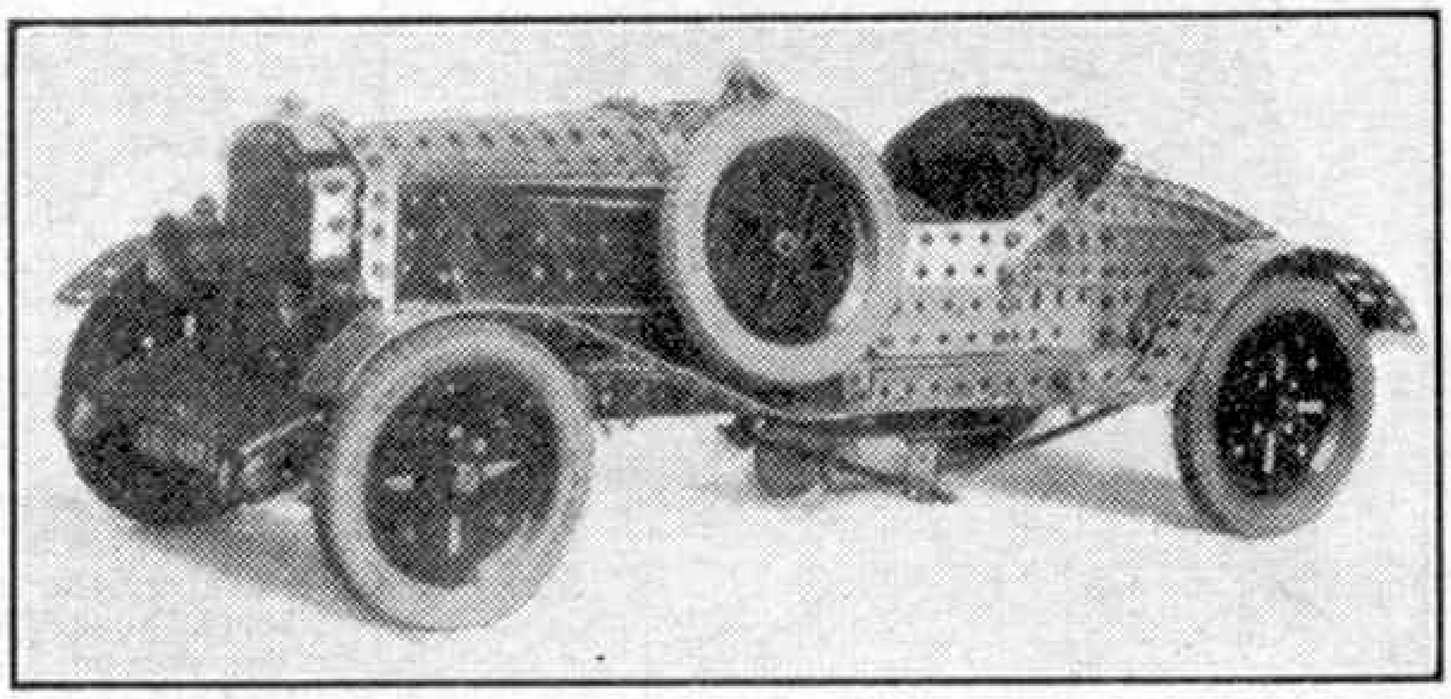


Fig. 3. The neatly designed radiator of this sports car is worthy of notice. The car is the work of A. W. Cooper, Southampton.

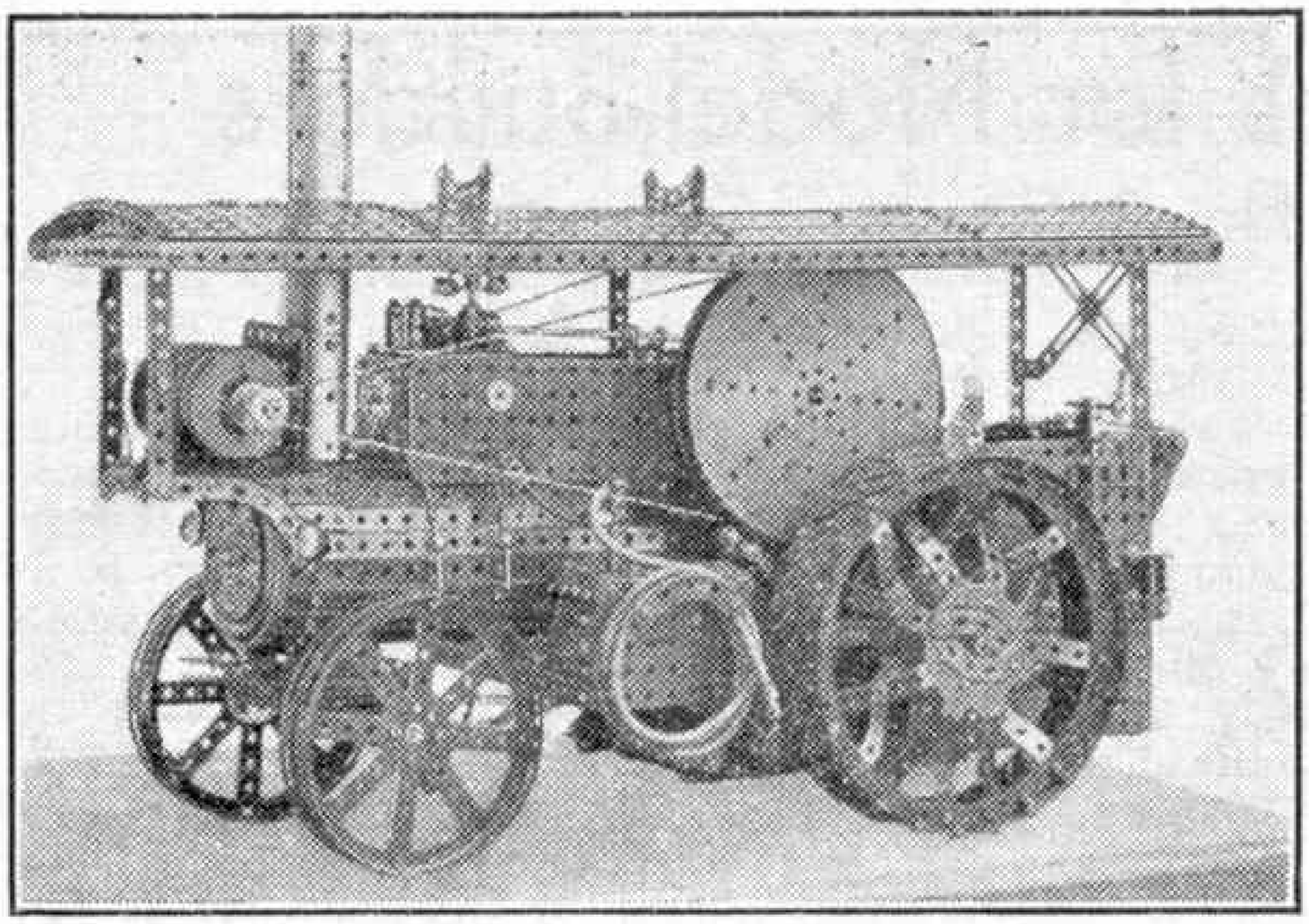


Fig. 4. A very imposing traction engine built by C. Howard Pendlebury, Hinckley. Readers will notice many particularly interesting constructional details.

the top, which is made in a similar manner. The two halves are hinged together and a length of Spring Cord is stretched between them to represent a continuous hinge. Another good effect is obtained in the steering wheel, which is a 2" Pulley, with a length of Spring Cord arranged round its rim. A switch is provided on the dashboard for switching on the Motor.

A sliding panel is fitted in the saloon roof and considerable attention has been paid to the fittings of the interior. Bucket seats are provided for the driver and passenger, while the rear seat is fitted with a central arm rest.

An excellent model of a very different type of vehicle was built by R. T. Morison, Cambridge. It represents a refuse remover of the kind used in some large towns. Refuse vehicles of this type should appeal specially to those model-builders who like constructing mechanisms, for they allow plenty of scope for ingenuity in devising suitable methods of raising and extending the folding ramps.

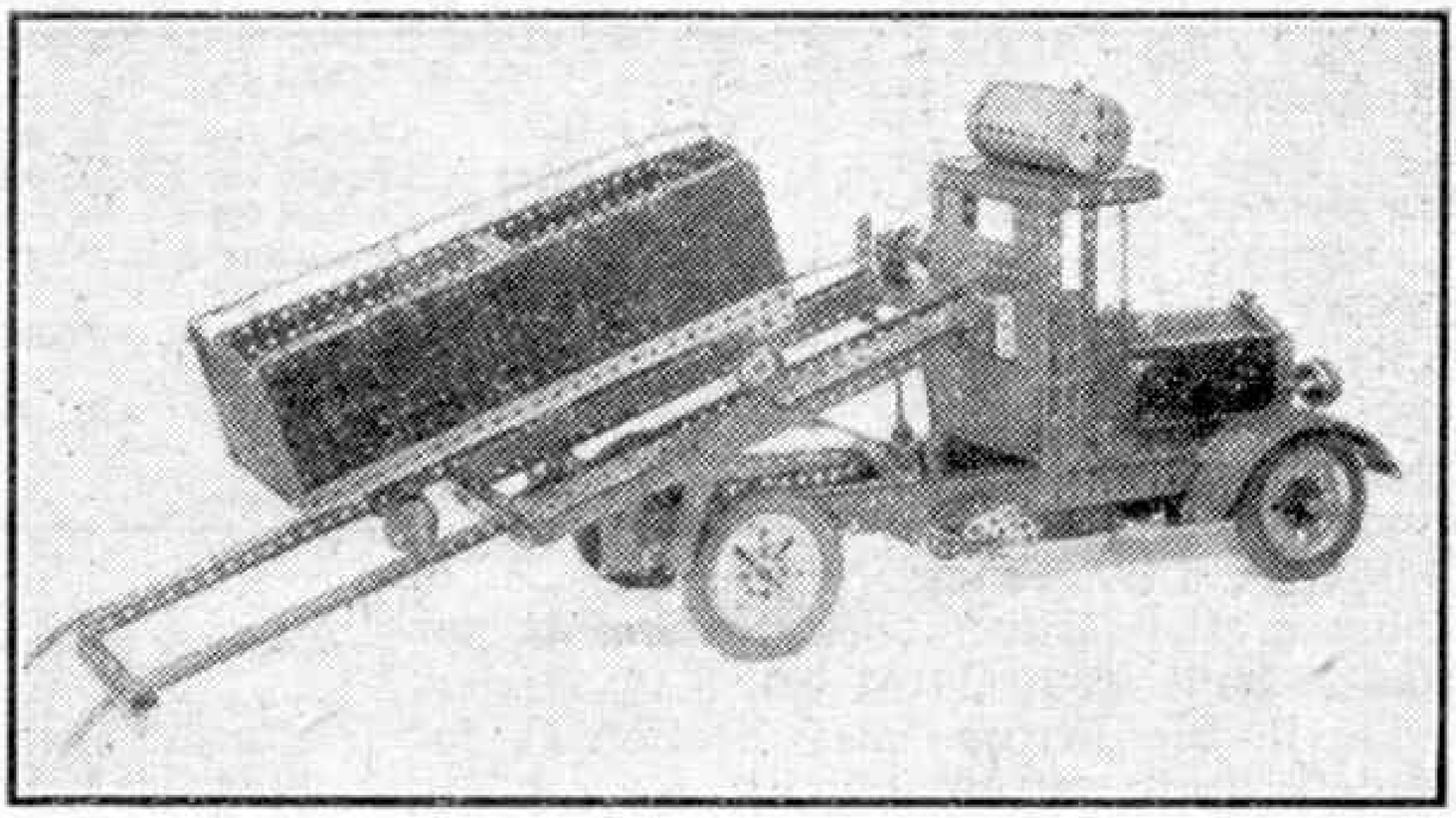


Fig. 5. A refuse collecting vehicle built by R. T. Morison, Cambridge.

The winding gear is perhaps the most interesting part of Morison's model, and the main details of this are as follows. Two $12\frac{1}{2}$" Angle Girders are bolted to two $5\frac{1}{2}$" Angle Girders, which form crosspieces. On the upper side of this are attached four $12\frac{1}{2}$" Angle Girders, which form a channel on each side of the framework. The sliding extension ramp is also made from two $12\frac{1}{2}$" Angle Girders, which form the rails for the trolley. These are joined at one end by a $5\frac{1}{2}$" Angle Girder. Two $2\frac{1}{2}$" Strips are attached to this end to continue the rails to the ground. At the other end are two Reversed Angle Brackets, spaced from the Girders by Washers so that they clip the extension ramp to the main ramp. The whole framework is pivoted on a Rod journalled in two Trunnions fixed to the chassis.

In most actual vehicles of this type the truck containing the refuse is pulled up the ramp by a cable, and the ramp is raised and lowered hydraulically. In the model the winding in of the cable is effected in the following way. A $2\frac{1}{2}" \times 1\frac{1}{2}"$ Double Angle Strip is bolted to the top of the ramp, and in the end holes of its arms a Rod is held. On this Rod are two 1" Pulleys spaced apart to form the winding drums, and on one end is a 57-tooth Gear Wheel. In the lower holes of the Double Angle Strip is journalled an 8" Rod. On one end of this is a $\frac{1}{2}$" Pinion that engages the 57-tooth Gear Wheel, and on the other end is a Pawl and Ratchet Wheel to act as a check brake. The Rod is fitted with two winding handles made from Cranks and Threaded Pins.

The mechanism for raising and lowering the ramp is operated through Screwed Rods, which are passed through Threaded Bosses held in Socket Couplings. A Pinion is held in the other end of each Socket Coupling, and engages a Contrate that is driven through a handwheel placed at the side of the vehicle.

(*Continued on page 238*)

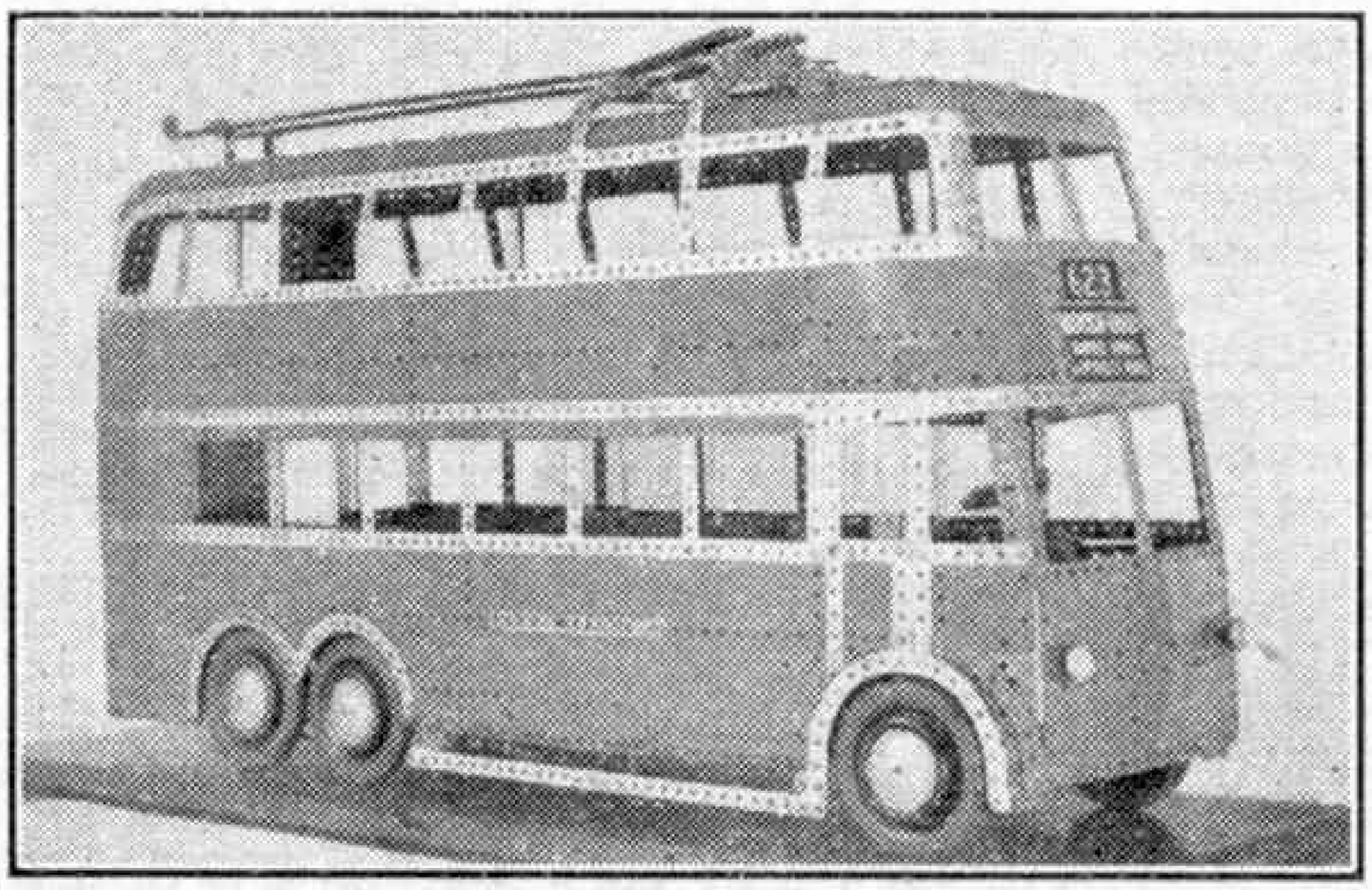


Fig. 6. A good example of a public service vehicle modelled in Meccano. This trolley bus is the work of N. C. Ta'Bois, Woodford Green.

Cash Prizes for Model-Builders

No. 4 and No. 8 "Outfits" Competition

THIS month we announce the third and last of the series of special "Outfit" competitions that have been running during recent months. In these prizes are awarded for the most interesting new models of any kind built by entrants using only the parts contained in specified Outfits. This month's prizes are offered for the best models built entirely from either a No. 4 or a No. 8 Outfit. Readers who possess larger Outfits may compete, provided that they use only parts included in either the No. 4 or the No. 8 Outfit, and for their guidance a list of the parts contained in each of these Outfits is given here. Competitors may if they wish use any of the Meccano Clockwork or Electric Motors for driving their models.

Entries will be divided into four groups: Section A, for models built from Outfit No. 4 by readers living in the British Isles; Section B, for models built from Outfit No. 8 by readers living in the British Isles; Section C, for models built from Outfit No. 4 by competitors living Overseas, and Section D, for models built from Outfit No. 8 by competitors living Overseas. Each Section is open to readers of all ages.

A separate and complete set of prizes as detailed in the panel on this page will be awarded in each Section of the Contest.

It is only necessary to send either a drawing or a photograph of the model—*the actual model should not be sent.* Competitors must enclose with their entry a list of parts used in the model, and must write their ages, names and addresses on the back of each photograph or drawing.

Envelopes containing entries should be addressed "*May Outfit Competition, Meccano Ltd., Binns Road, Liverpool 13.*" A large letter A, B, C or D must be marked in the bottom left-hand corner of the envelope to indicate the Section for which the entry is intended.

Entries for Home Sections A and B will be accepted up to 30th June 1952. The closing date for entries in the Overseas Sections C and D is 30th August 1952.

Photographs or sketches of prize-winning models become the property of Meccano Ltd., and are not returnable. Unsuccessful entries will be returned, however, if a stamped envelope is sent for that purpose.

No. 4 and No. 8 OUTFITS COMPETITION

THE PRIZES

A separate set of Prizes as follows will be awarded in each of the Sections A, B, C and D.

First Prize .. Cheque for £3 3s. 0d.
Second Prize .. Cheque for £2 2s. 0d.
Third Prize .. Cheque for £1 1s. 0d.
Five Prizes each consisting of a Postal Order for 10/6.
Five Prizes each consisting of a Postal Order for 5/-.
Certificates of Merit also will be awarded.

Contents of Outfit No. 4:

4 of No. 1; 8 of No. 2; 2 of No. 3; 9 of No. 5; 5 of No. 10; 2 of No. 11; 8 of No. 12; 4 of No. 12c; 2 of No. 15b; 4 of No. 16; 2 of No. 17; 2 of No. 18a; 1 of No. 18b; 2 of No. 19b; 1 of No. 19g; 5 of No. 22; 1 of No. 23; 1 of No. 24; 2 of No. 24a; 2 of No. 34; 8 of No. 35; 1 of No. 36; 87 of No. 37a; 81 of No. 37b; 8 of No. 38; 2 of No. 38d; 1 of No. 40; 1 of No. 44; 1 of No. 48; 6 of No. 48a; 1 of No. 51; 1 of No. 52; 2 of No. 54; 1 of No. 57c; 4 of No. 90a; 6 of No. 111c; 2 of No. 125; 2 of No. 126; 2 of No. 126a; 4 of No. 142c; 4 of No. 155; 1 of No. 176; 1 of No. 186; 4 of No. 187; 2 of No. 188; 2 of No. 189; 4 of No. 190; 2 of No. 191; 2 of No. 192; 1 of No. 198; 2 of No. 199; 2 of No. 200; 1 of No. 212; 1 of No. 213; 2 of No. 214; 4 of No. 215.

Contents of Outfit No. 8:

14 of No. 1; 21 of No. 2; 6 of No. 2a; 6 of No. 3; 6 of No. 4; 18 of No. 5; 2 of No. 6; 6 of No. 6a; 10 of No. 8; 4 of No. 9; 20 of No. 10; 5 of No. 11; 34 of No. 12; 6 of No. 12a; 2 of No. 12b; 8 of No. 12c; 2 of No. 13; 1 of No. 13a; 3 of No. 14; 4 of No. 15; 5 of No. 15a; 2 of No. 15b; 5 of No. 16; 5 of No. 17; 4 of No. 18a; 2 of No. 18b; 2 of No. 19b; 1 of No. 19g; 1 of No. 19h; 4 of No. 20; 4 of No. 20a; 4 of No. 20b; 2 of No. 21; 5 of No. 22; 4 of No. 22a; 3 of No. 23; 1 of No. 23a; 2 of No. 24; 4 of No. 24a; 3 of No. 26; 2 of No. 27a; 1 of No. 28; 1 of No. 29; 2 of No. 32; 2 of No. 34; 19 of No. 35; 1 of No. 36; 1 of No. 36a; 1 of No. 36c; 267 of No. 37a; 240 of No. 37b; 26 of No. 38; 2 of No. 38d; 3 of No. 40; 1 of No. 43; 1 of No. 44; 3 of No. 45; 2 of No. 46; 2 of No. 48; 10 of No. 48a; 6 of No. 48b; 2 of No. 48c; 2 of No. 48d; 2 of No. 51; 2 of No. 52; 5 of No. 53; 2 of No. 54; 1 of No. 57b; 1 of No. 57c; 10 of No. 59; 2 of No. 62; 6 of No. 63; 1 of No. 65; 2 of No. 77; 1 of No. 80a; 2 of No. 80c; 4 of No. 90; 4 of No. 90a; 1 of No. 94; 2 of No. 95; 2 of No. 96; 1 of No. 96a; 2 of No. 108; 2 of No. 109; 3 of No. 111; 6 of No. 111a; 6 of No. 111c; 2 of No. 115; 1 of No. 116; 1 of No. 116a; 1 of No. 120b; 4 of No. 125; 4 of No. 126; 4 of No. 126a; 4 of No. 142a; 4 of No. 142c; 2 of No. 147b; 1 of No. 147c; 4 of No. 155; 1 of No. 160; 1 of No. 162; 2 of No. 163; 2 of No. 164; 2 of No. 165; 1 of No. 166; 1 of No. 176; 1 of No. 185; 3 of No. 186; 2 of No. 186a; 2 of No. 186b; 4 of No. 187; 4 of No. 187a; 8 of No. 188; 8 of No. 189; 10 of No. 190; 6 of No. 191; 12 of No. 192; 6 of No. 197; 1 of No. 198; 2 of No. 199; 8 of No. 200; 2 of No. 212; 2 of No. 213; 2 of No. 214; 8 of No. 215; 2 of No. 216.

From Our Readers

This page is reserved for articles from our readers. Contributions not exceeding 500 words in length are invited on any subject of which the writer has special knowledge or experience. These should be written neatly on one side of the paper only, and should be accompanied if possible by original photographs for use as illustrations. Articles published will be paid for. Statements in articles submitted are accepted as being sent in good faith, but the Editor takes no responsibility for their accuracy.

THE OLDEST BRITISH WARSHIP AFLOAT

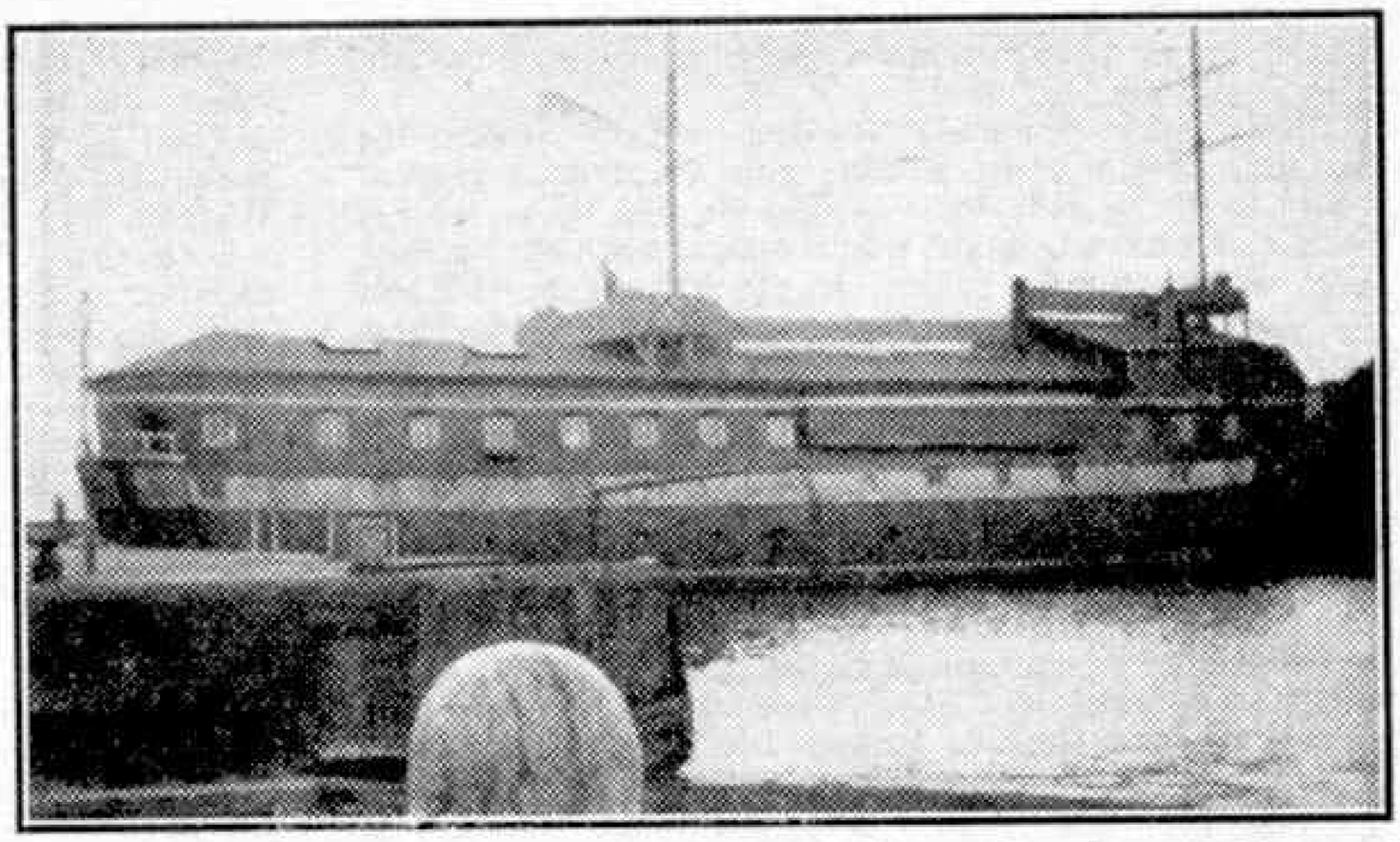
I think readers of the "*M.M.*" will be interested in the photograph I am enclosing. This shows H.M.S. "*Cressy*" formerly the "*Unicorn*," moored at her berth in the Earl Grey Docks, Dundee.

The "*Unicorn*" has the distinction of being the oldest ship of the Royal Navy still afloat. The oldest British warship today is Nelson's flagship "*Victory*," but this famous vessel after a long and active career now lies in dry dock at Portsmouth.

The 115 year old "*Unicorn*" is the present day headquarters of the Tay Division of the Royal Navy Voluntary Reserve. She was built at Chatham in 1836 and remained there for 37 years. On 7th November 1873 she was transferred to Dundee to replace the smaller ship "*Brilliant*," which was moved to Inverness, after having served the purpose of a drill ship at Dundee for 11 years. The "*Brilliant's*" anchor, which is 140 years old, still lies on the quay near the "*Unicorn's*" berth.

During her long career the "*Unicorn*" has suffered many alterations, the latest of these being the change of name. A new Fleet Air Arm repair ship built at Belfast was named "*Unicorn*." This made it necessary for the older vessel's name to be changed to "*Unicorn II*." Then to avoid confusion this was altered to "*Cressy*."

DAVID MACPHERSON (Dundee).



H.M.S. "Cressy," the depot ship of the R.N.V.R. at Dundee. This vessel was formerly named "Unicorn," and is the oldest British warship yet afloat. Photograph by David Macpherson, Dundee.

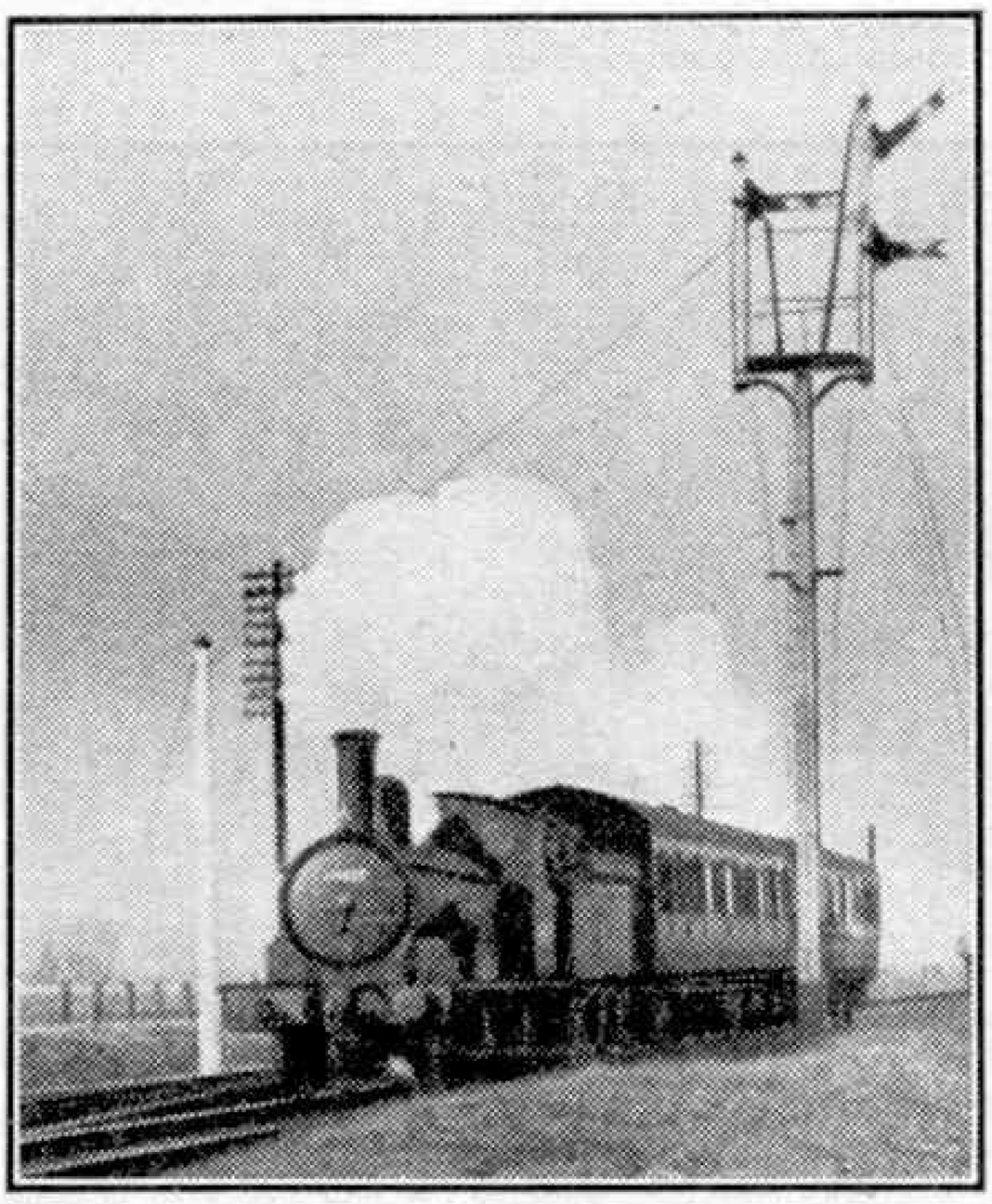
A SMALL LINE TRAIN

Here in East Anglia several branch and connecting lines exist, but many are suffering closure. One of the busier "small" lines, a single track one, runs from Mark's Tey, Essex, to Shelford, in Cambridgeshire. The distance by rail is 43 miles, and the Essex-Suffolk border is followed for most of this mileage.

Construction commenced over 100 years ago. The builders then hoped that heavy traffic would one day use their railway and consequently made bridges and earthworks large enough to take a double set of metals. In practice single track has always proved adequate to carry the services run. The greater number of passenger trains using it travel between Colchester and Cambridge, continuing over main lines at its ends to reach their destinations. All intermediate stations are called at. Motive power is usually provided by elderly locomotives of G.E.R. origin. Six-coupled machines of class J15, an 1883 design, are commonly to be seen. Sometimes one of the few remaining 2–4–0 locomotives in the country, of class E4, works a train.

On 11th February I stood at Shepreth Junction to watch the passage of the Royal Funeral train en route from Wolferton to King's Cross. Shortly after it passed, other trains that had been delayed to ensure it a clear path came along. Lighting conditions were poor, and my camera was kept in its case, but as this little train raced into view on its way from Cambridge to Shelford, and the Shelford-Mark's Tey line, out peeped the Sun. Although the train's near side was thrown into shadow the lighting appeared to turn approaching storm clouds from dark grey to a darker blue than writing ink. Against these clouds exhaust steam from the engine quickly condensed, giving a contrast not so easily obtained in hotter summer days, when I believe most railway photographers flock to the lineside. So I obtained the photograph of the train, with a "J15" 0–6–0 at its head, that is reproduced on this page.

G. R. MORTIMER (Manningtree).



The 1.29 p.m. Cambridge-Colchester train approaching Shepreth Junction, Shelford. The locomotive is Class J15 0-6-0 No. 65457.

Club and Branch News

WITH THE SECRETARY

MORE OUTDOOR ACTIVITIES

Last month I drew attention to the importance of getting away to a good start with a Summer programme designed to encourage members in outdoor activities as much as possible. In most Clubs and Branches this programme will now be in full swing, and I hope that wherever possible swimming and life-saving are included.

Clubs and Branches located within reasonable distance of the coast will be able to arrange regular visits to the seaside for this pursuit, but those farther inland will have to make use of a local open-air bathing pool or the public baths. It should not be difficult to arrange swimming lessons for those members not yet able to "take the plunge," and the Leader should follow this up with some lessons in life-saving. Encouragement can be given to those learning to swim by offering small prizes for those who make the best progress by the end of the outdoor season. A word of warning—older members who are experienced swimmers should arrange to keep an eye on the younger members during Club visits to the seaside, bathing pool or swimming baths.

Members like to have souvenirs of interesting events in their Club or Branch life, and this is where the amateur photographer can do good work. A photographic section is a great asset, and those who take part in it gain valuable experience in their hobby while at the same time enabling the Club or Branch to gradually compile a fascinating pictorial record of its activities. A little guidance by the more experienced photographers among the members will enable those who are starting the hobby to avoid wasting their films.

Successful pictures developed and printed by the photographic section can be sold to fellow-members, and the money given to Club funds, which in this way can be considerably enriched in the course of a single Summer session.

CLUB NOTES

MILE END (PORTSMOUTH) M.C.—During a visit to Fratton Police Station members and their parents saw Road Safety Films. Members are entering a "Road Safety" Poster Competition suggested by Sgt. Kent, which will be judged by him at the Club Exhibition. The second Anniversary Party has been held, and also a Mock Trial. A Hornby, Hornby-Dublo and Dinky Toys Night proved very interesting. New activities include Film Shows and Model Aeroplane construction. Plans for the Summer include a trip to the London Zoo. Club roll: 40. *Secretary:* P. Leggatt, 54, Adelaide Street, Fratton, Portsmouth.

EASTWOOD SECONDARY SCHOOL—The Club has made steady progress. Visits to the "Daily Express" offices and the North British Locomotive Works were greatly enjoyed. A Hornby-Dublo layout is to be set up, and as a start an 8 ft. by 4 ft. baseboard and several items of equipment have been bought. Club roll: 14. *Secretary:* David Huddleston, 30, Merryton Avenue, Giffnock.

SIR THOMAS RICH'S SCHOOL (GLOUCESTER)—A Competition "*Anything in the streets of Gloucester*" brought many excellent entries, and the three chief prize-winning models were a bus, excavator and weighing machine. A Library has been formed, to which one member has contributed some back numbers of the "*M.M.*" A "*What is it?*" Competition provided much enjoyment. Club roll: 11. *Secretary:* B. R. Wiggall, 14, Sapperton Road, Gloucester.

FRATTON BOYS' (PORTSMOUTH)—Plans for the Summer include a Camp, Spotting Outings, and a Visit to Brighton. Some excellent Meccano models were displayed at a Bazaar organised by members' parents, which was followed by a Social attended by about 50 parents and friends. Club Night is Tuesday each week, 6–8.30 p.m., at the address given below. New members will be welcomed. Club roll: 15. *Leader and Secretary:* Mr. A. A. Foster, Foresters Hall, Fratton Road Portsmouth.

BRANCH NEWS

NEW ROAD (SOUTH CHINGFORD)—The Branch Exhibition was very successful, with up to 10 locomotives busily hauling trains each evening during the display. Further track meetings have been held with splendid results. Plans have been made to extend the layout and add a new terminal station. *Secretary:* Mr. K. White, 136, Westward Road, South Chingford, London E.4.

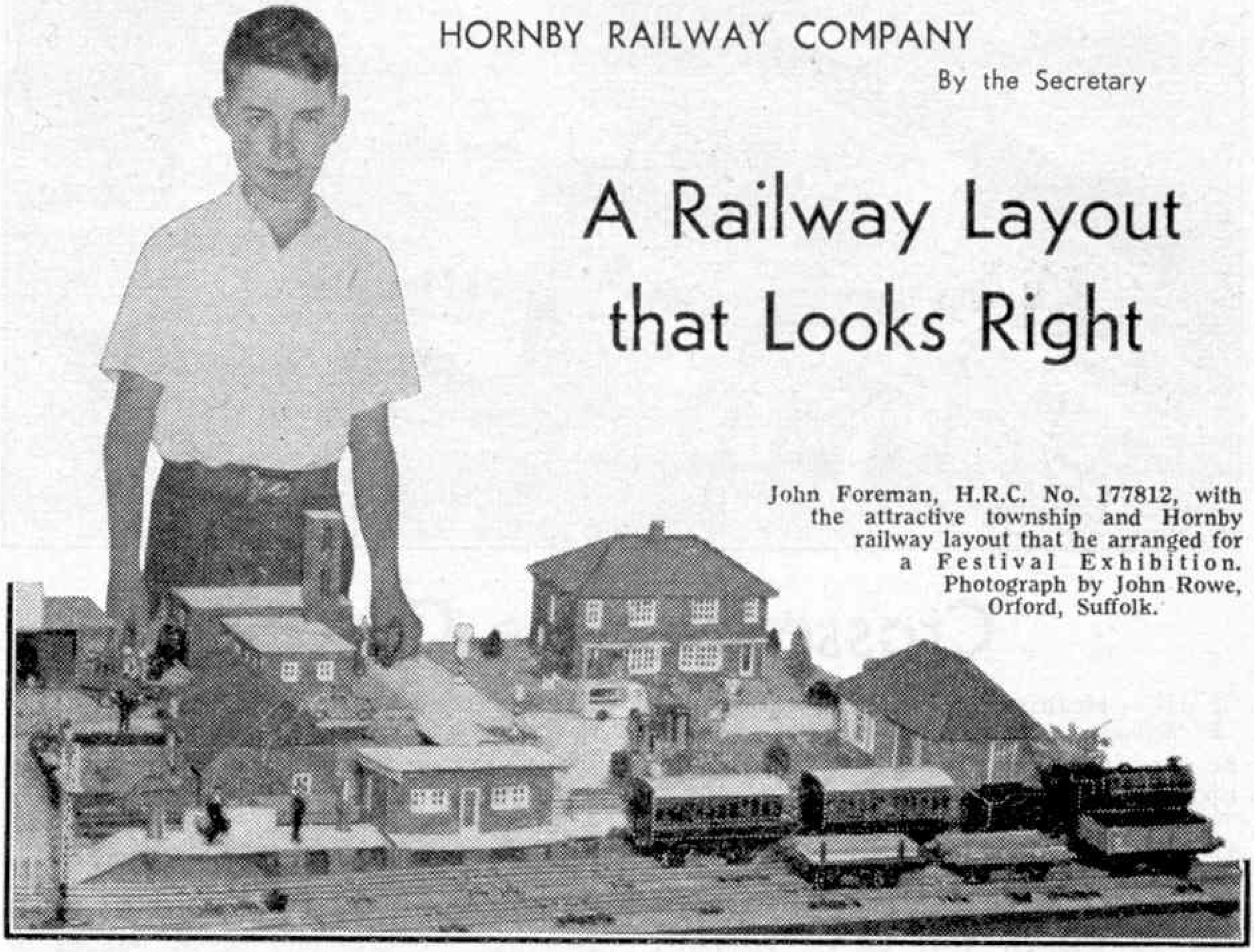
ROYAL GRAMMAR SCHOOL—The Hornby-Dublo layout is coming along very well now. Arrangements for signalling have been begun. It is intended to work the points from a lever frame inside a signal box. *Secretary:* B. Connett, "Northwood," Eastfield Road, Benton, Newcastle-on-Tyne.

Officials and members of the Nijmegan, Holland M.C. The photograph was taken by Mr. A. A. M. Wolters, and the group includes Mr. H. Th. M. Hendriks, President of the Club, on the right, and Mr. Hein G. M. van Brienen, Leader, on the left. This fine Club was affiliated in February of this year, and recently a successful Exhibition was held of an excellent series of working models built by members.

HORNBY RAILWAY COMPANY

By the Secretary

A Railway Layout that Looks Right



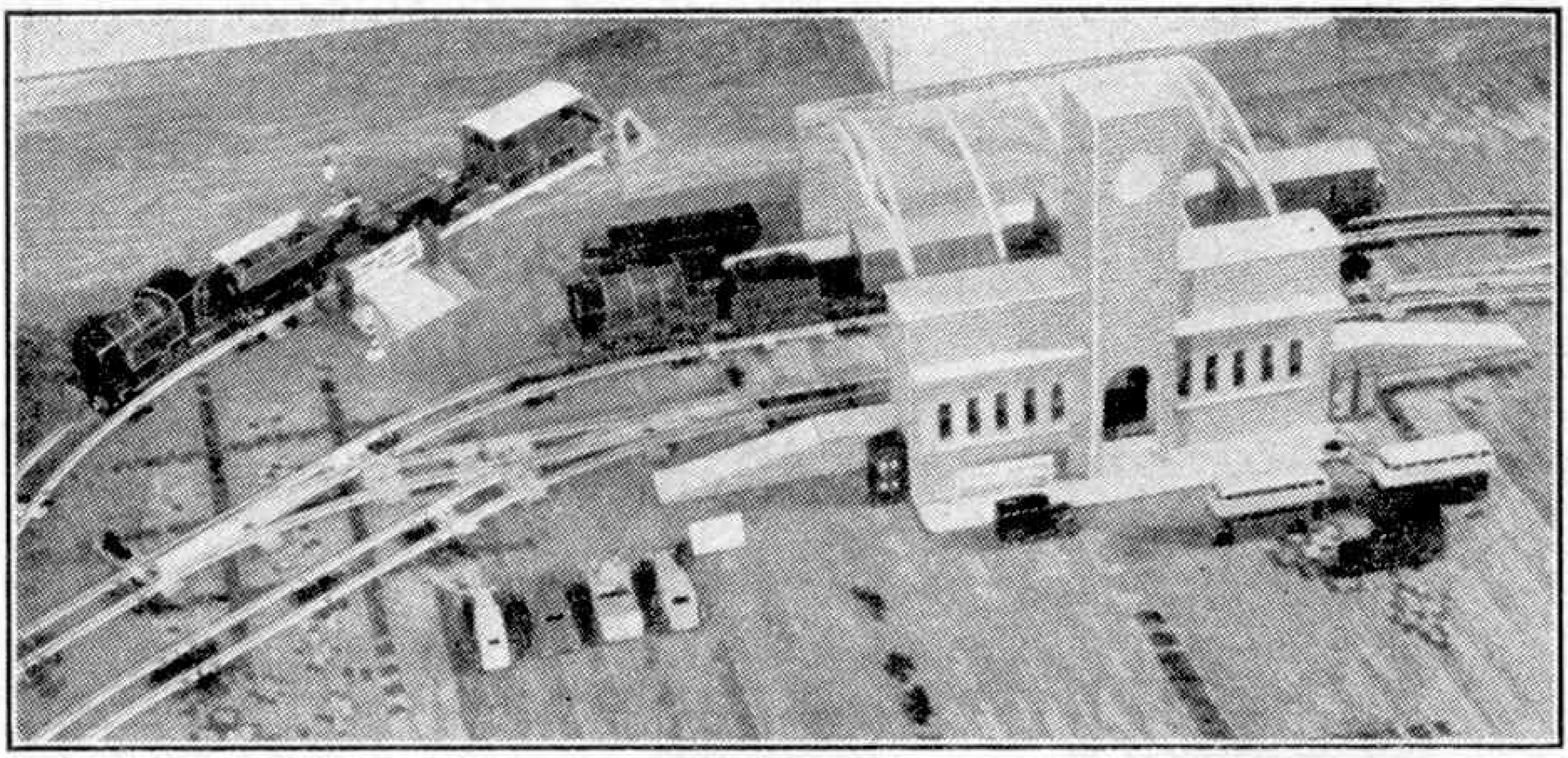
John Foreman, H.R.C. No. 177812, with the attractive township and Hornby railway layout that he arranged for a Festival Exhibition. Photograph by John Rowe, Orford, Suffolk.

EXHIBITIONS and railway running displays are regular features of H.R.C. Branch activities and individual members often join in the fun by arranging similar displays on their own. This is what John Foreman did at Orford, in Suffolk, and his fine effort is illustrated on this page. All the constructional work as well as the planning is his own, and his combined railway and model village was an outstanding attraction at the local Festival Exhibition in which it appeared. Needless to say, it aroused the keenest interest, as such displays always do when they are well arranged and worked efficiently.

Many layouts that otherwise are good fail to give the right impression because their lineside effects are too much spread out and are not well arranged. In this respect the display shown is admirable, because there is a definite idea behind the arrangement of the various buildings near to the railway. Possibly the fact that space for display was limited has had something to do with this, but at all events the owner evidently aimed at a realistic effect—and he certainly achieved it. One bas the impression that the railway and station really belong to the general scene, and have not simply been put down alongside the track.

Much of the equipment shown is quite simple in character. For instance, the station is a small one of the ordinary wayside type. It is easily reached by the road system serving the miniature township. There is more than one road, a point often overlooked in arranging such layouts, and the various buildings and other property form well-defined "lots" as it were. Another good point is that the roads are of the right width in relation to the Dinky Toys that appear on the layout. The buildings have not been crowded together unduly, and as a result there is sufficient space for road traffic.

The railway arrangements are simple. The station platform serves a single track on which a Hornby 501 Passenger Train, less one Coach, is seen just leaving the station. Alongside this platform line is another track that can serve as a siding or as a loop. On it three wagons are standing, no more. The result is as natural a scene as can be observed almost anywhere on our railway system.



Crossover on a Curve

THE Hornby railway of John M. Edwards, of Louth, Lincs., has to be put down each time it is used and taken up again when train running stops. This is regarded as a nuisance by most Hornby railwaymen, but it does give them opportunities of trying out fresh layouts. John Edwards knows this very well, and he tells us that he is constantly experimenting with new track designs.

One result of these experiments is particularly interesting. The layout in use now consists of an oval-shaped double track with a branch line running off the outer track to form a goods siding. Its inner and outer tracks are connected by Points in a manner that gives a rather exciting improvement on the usual plan of making use of two right hand or two left hand Points. When this is done along a straight stretch, the usual position for a crossover, the two tracks have to be a considerable distance apart, and trains passing from one to the other have to negotiate a reverse curve.

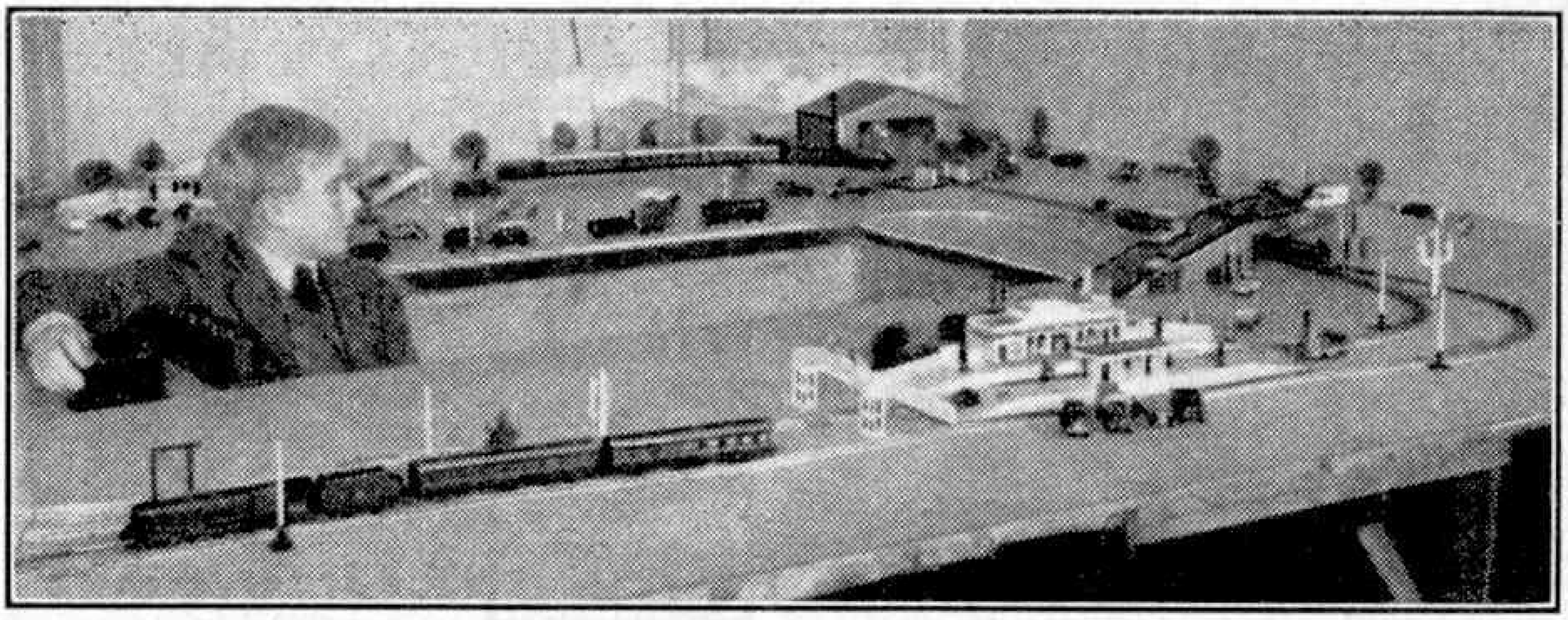
In the new scheme one right hand and one left hand set of Points are joined together, and this is done on a curved stretch of track, a simple plan that gives a single instead of a reverse curve. Our illustration makes this clear. Care of course has to be taken in operating the levers, as one unit has to be set for the straight when the other is set for the curve. In this respect John Edwards is lucky, for his grandfather works the Points with enthusiasm, and friends and visitors too like to join in the fun.

On many miniature railways there is a tendency to overcrowd the system with rolling stock, which cannot possibly all be moved at once. In this the present layout is well managed, and the three passenger vehicles and seven wagons in use are sufficient to give good running. They are handled by two Hornby locomotives, a 201 Tank and a 501 tender type.

The owner of this system has recently completed the station shown in the illustration. This has two platforms serving the main double track, and on one side the station wall is built out to represent offices. The five arched supports of the roof are of plywood joined into longitudinal bearers, the frame resting on supports attached to each side wall. The cellophane "glazing" is attractive and can easily be removed, and the clock tower that dominates the scene also is detachable. The walls of the buildings are finished with printed papers representing brickwork.

The miniature town alongside the railway includes a bus station, and there are also a car park and a taxi stand. These are useful in connection with the Dinky Toys traffic on the layout. Ample room for the operator is left in the centre of the layout, a point that is missed on some systems.

The illustration at the head of this page shows a corner of the Hornby layout of John M. Edwards, Louth, Lincs. This incorporates the arrangement of the crossover Points described on this page.



A Modern Railway Builder

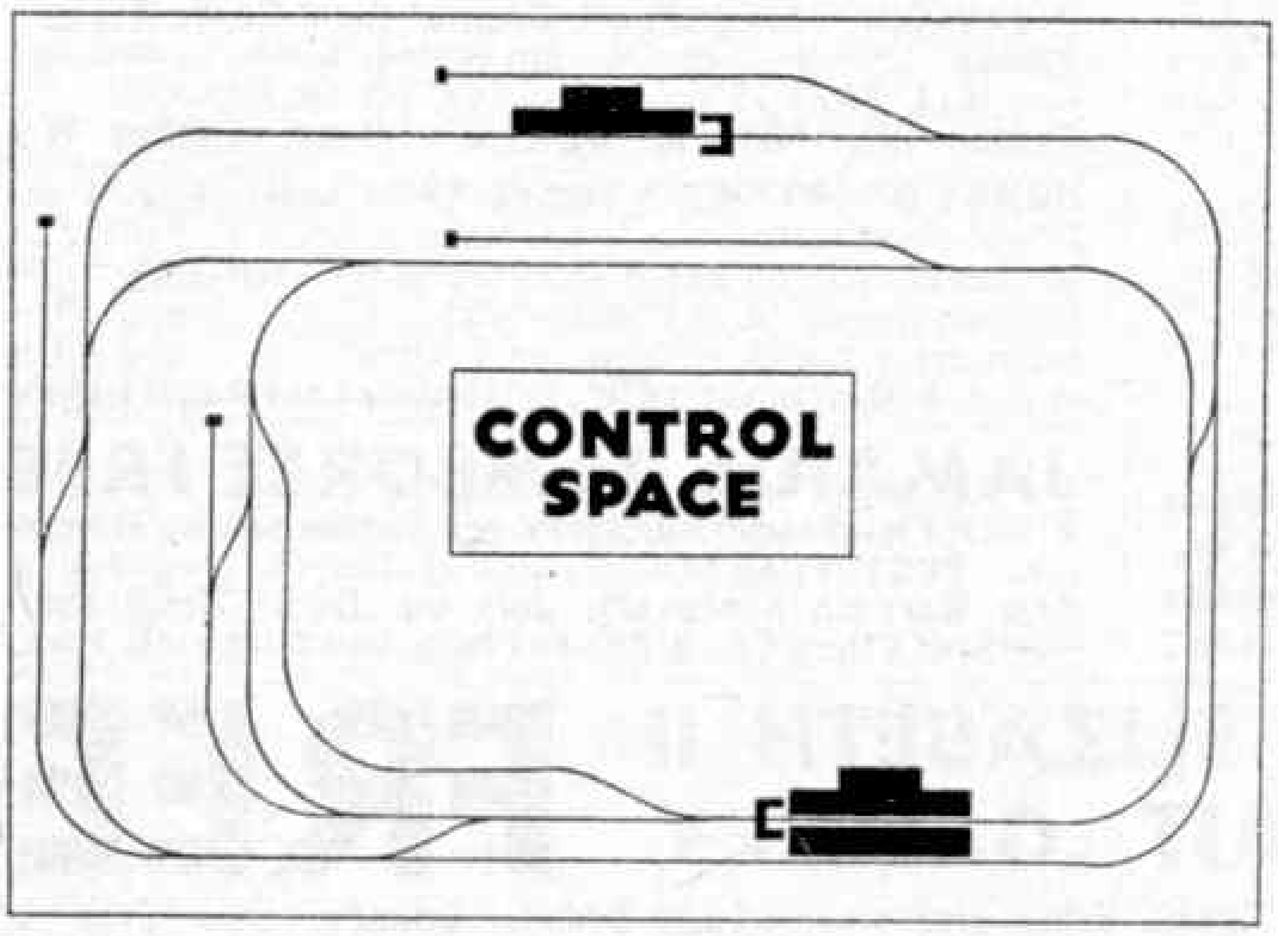
WHEN John Lacon, whose H.R.C. number is 174389, sent in pictures of his Hornby-Dublo railway, it was soon realised that here was a miniature railway likely to be interesting to other "*M.M.*" readers. Then another interesting fact emerged. This was that John Lacon's great-great-grandfather, Sir Edmund Knowles Lacon, was one of the men who 110 years ago gave the county of Norfolk its first line, the Yarmouth and Norwich Railway, and actually lived in the very house in which his great-great-grandson's Hornby-Dublo railway is now laid down.

The second of these two railway builders of the same family started out on his venture four years ago last Christmas, when a Hornby-Dublo Tank Goods Train Set came his way. The pioneer layout he then built has now been developed into the extensive and well planned miniature railway shown in our illustration. The owner did not make the 14 ft. × 10 ft. baseboard himself, but the whole of the track was laid down by him with the aid of his ten year old sister Elizabeth, who constructed many accessories.

The railway is installed in a room of its own, in which there are also the tables where the constructional and scenic work necessary is carried out. The tool that seems to be in most frequent use is a fretsaw, with which Elizabeth helped to provide cut-out trees and other scenic items, which she herself painted.

As the diagram shows, the layout consists mainly of two oval tracks, with various connections between them. There are also several sidings and an inner loop line. Control and isolating arrangements allow for the movement of three trains at the same time, all under the watchful eye of the operator in the "Control Room," which is a central space cut out of the baseboard. Traffic on the line is handled by a "*Duchess of Atholl*," a "*Sir Nigel Gresley*" and two Tank locomotives. An excellent array of passenger and goods rolling stock is available, and really fascinating traffic work is enjoyed by the owner of this fine system and his sister.

Stations and such lineside equipment as footbridges and signals are standard Hornby-Dublo products, and the well planned introduction of Dinky Toys adds greatly to the gaiety of the scene.



The picture at the head of the page, by A. A. Francis, of Martham, nr. Great Yarmouth, shows John Lacon, H.R.C. No. 174389, working his Hornby-Dublo railway from the operating well in the baseboard. The diagram shows the layout of the track.

BARGAIN DISCOUNT APPROVALS!

Large, fine selections of picked stamps—yours for the asking. (We pay postage one way). Singles, new issues, etc., plus a grand book of sets. Generous discount allowed. "Wants" lists of single stamps welcomed. These are the REAL collector's approvals. Why not try them TO-DAY? There's no obligation to buy. We offer "Adult service for Junior Collectors."

THE BIRKDALE STAMP CO.
104, Liverpool Rd., Southport, Lancs.

PTS Postal Business Only

Build your collection THE NEW MERCURY *Way!*

THE "NEW MERCURY" APPROVAL SERVICE

offers you

- **Fine stamps—attractively displayed and reasonably priced**
- **Beautiful and interesting issues**
- **Single stamps and sets**

IN FACT—the stamps you want at prices you can pay.

PTS We invite you to send for a "NEW MERCURY" Booklet on 10 days approval. See for yourself—there is no obligation to buy.

PHILIP J. DYKE 35, BUCKLEIGH AVENUE LONDON S.W.20

SPECIAL COUNTRY PACKETS

50 Austria	1/-	50 Italy	9d.
50 Belgium	9d.	25 Roumania	9d.
50 Br. Empire	9d.	25 San Marino	9d.
25 Bulgaria	9d.	25 Sweden	6d.
50 Czechoslovakia	9d.	50 Switzerland	1/-
100 Hungary	1/-	10 Tanna Tonva	1/9

Post free with our famous ½d. Upwards approvals.

CAPTAIN M. CAMPBELL & CO. (Dept. MM)
58, High Street, Watford, Herts.

FRANCE AND COLONIES Etc. All Diff. 2½d. Postage

100 France 1/3, 200 France 3/6, 50 Fr. Cols. 1/6, 100 Fr. Cols. 2/6, 25 Fr. Airs 3/-, 25 Algeria 1/3, 50 Algeria 2/9, 25 Guiana 1/9, 25 Cameroons 1/6, 50 Cameroons 4/6, 25 Eq. Afr. 2/6, 25 Somali 2/6, 25 Morocco 1/6, 50 Morocco 3/-, 25 W. Africa 3/6, 25 Guadeloupe 1/9. 25 Martinique 1/6, 25 Reunion 2/-, 25 S. Pierre 2/-, 25 Lebanon 2/6, 25 Tunis 1/6, 50 Tunis 3/-, 25 Syria 2/-, 25 Vatican 1/9, 25 Monaco 1/6, 25 S. Marino 1/-, 50 S. Marino 2/6, 25 Indo-China 2/-

FRED HARLOW. 12. Granville Road, Sevenoaks, Kent

FREE GREAT BRITAIN 5/-

Send 3d. post, request approvals containing U.P.Us., Weddings and latest commemoratives.

GODDARD, 29, ARCADE, BOSCOMBE, HANTS.

4 FINE U.P.U.s FREE

Send 2½d. for my latest approvals.

D. J Palmer (M14). Highwood Hill Camp. Mill Hill. N.W.7

THE ROYAL FAMILY

This FREE packet covers 100 years of the Royal House. The collection includes an Old Victorian (1841), Edward the Peace-maker, current and obsolete issues of Royal relatives, such as King George V on Burmese stamp, Edward Duke of Windsor, Duke and Duchess of Gloucester, QUEEN ELIZABETH II., QUEEN MOTHER, Princess Margaret, and scarce stamps of KING GEORGE VI from NIGERIA, SIERRA LEONE and BARBADOS. Send today for this packet of the ROYAL HOUSE, enclosing 3d. postage and requesting our approvals.

LISBURN & TOWNSEND LTD. (MM), West Kirby, Wirral

FREE—NEW 2/6 GT. BRITAIN

Showing H.M.S. "Victory" will be given free to all genuine applicants for our famous ONE PENNY APPROVAL BOOKLETS of BRIT. COLONIALS. These Booklets abound with JUBILEES, PEACE, CORONATIONS, SILVER WEDDINGS and U.P.U. as well as the latest K.G. VI stamps. Many Bargains as usual. N.B.—Enclose 2½d. stamp for Postage.

S. FENLEY LTD., 250, Charminster Rd., Bournemouth

NEW ISSUE PACKET

FREE

A fine set of these large pictorial mint stamps sent by return of post.

Request our famous approvals and enclose 2½d. postage.

L. E. THOMPSON (MM), 2, Western Gardens, W.5

STAMP COLLECTION FREE Many valuable sets and pictorials incl.

NICARAGUA TRIANGULAR. Cape of Good Hope. Western Samoa. Chinese overprints, **Abyssynia.** Lundy Is., Mauritius.

ALL FREE. Send 3d. postage, ask for approvals.

Roston (H), 106, St. Dunstan's Road, London W.6

HOURS OF INTEREST Sorting These Lots!	½ lb.	4 oz.
World asstmt. from many countries (no G.B.)	9/9	5/3
British Empire on paper unsorted as received	12/9	6/9
Holland recent (many pictorials)	5/6	3/-
Australia, Canada, Belgium or France ..	6/9	3/9

ex abd. **A. Davies (est. 1936), 111, Holme Lacy Rd., Hereford**

JAMAICA JAMBOREE FREE

Brilliant mint superb pictorial and 5 other scarce stamps sent **POST FREE** to genuine collectors requesting **Star Bargain Approvals. Join our Club! Write now. Northern Stamp Co., 8, Rowan Place, New Earswick, York.**

QUEEN ELIZABETH II PORTRAIT GALLERY FREE

Including 1951 ROYAL VISIT and scarce **1939 R.V.** of **Canada.** Sent **Free** to collectors asking to see our famous **'quality'** approvals (Condition that counts). Send 3d. to cover our postage and lists. **If you wish** you may join **"THE CODE STAMP CLUB."** Sub. 1/-. You rec. **Badge,** Membership Card listing **fine Gifts** and **'quality'** approvals monthly. (Gifts inc. full-size **Tweezers,** etc).

(Established 54 years). **WRIGHT'S STAMP SHOP, (M31), CANTERBURY, Kent**

For other Stamp Advertisements see also pages 234 and xvi.

Stamp Collectors' Corner

F. E. Metcalfe

THE NEW SEYCHELLES ISSUE

AS long ago as September 1950 the Crown Agents announced a new set of stamps for the Seychelles, but before we discuss the set, which finally appeared on 3rd March, a few words on the territory itself may come in useful for the writing up of the set in one's album. Many will be doing this, for Seychelles is exceedingly popular with stamp collectors.

These islands have been in the hands of Great Britain since 1814, though Seychelles did not become a Crown Colony until 1903. There are 90 islands in the group, but the total area does not exceed that of a moderate sized British county. Actually it is only 156 square miles, and one island, Mahe, makes up 55½ of these. It is on this island that the capital, Victoria, is situated. This is a coaling station, and has a good harbour as well.

The islands lie to the N.N.E. of Madagascar, and as they are situated in the tropics products such as coffee, cocoa, vanilla and coconuts are exported. Many seabirds breed on some of the smaller islands, and the resulting guano also is an important export. The cinnamon tree flourishes there, as does the Coco-de-Mer palm, but more about this interesting tree later on.

As already mentioned, Seychelles stamps are exceedingly popular with philatelists—one particularly fine collection is in South Africa—but with so many surcharged stamps to contend with, it would be a bold collector who would tackle the issues that appeared during the reign of Queen Victoria. The first stamps appeared on 5th April 1890. They were the plain head type, which Messrs. De La Rue were producing in those days. Three years afterwards a spate of overprinted stamps was put in use, and this surcharging went on until 1903. Then new stamps appeared, still from the same printers and still the head type, but now a portrait of King Edward VII was substituted for the head of Queen Victoria. In 1912 the head was changed again. Plenty of stamps, but no pictures. Yet, dull as these stamps seem to some, they have a certain fascination.

There has been a lot of talk about unnecessary issues, yet it was not until 1935 that Seychelles had its first commemorative set. This consisted of three values, and the object of the issue was to honour the "Silver Jubilee" of King George V. The next stamps to appear were the three K.G. VI Coronation stamps. Then we got the first pictorials, and for

the photogravure process.

A word of warning here. Scotch tape is often used nowadays to seal envelopes and parcels, and sometimes some of this horrible stuff is stuck across a nice stamp. If this is immersed in benzine the gum will be loosened, but if benzine gets near stamps printed by the photogravure process the design of the stamp will be loosened also. So no benzine!

The designs used for the 1938 set were similar to those used for the new issue of 1952, so we need not dwell on these, but the penultimate set is worth about £12. Most of us will have to be content with the one that has just appeared.

Harrison and Sons are again the printers. They have again used the photogravure process, and how well they do use it! The paper on which the stamps are printed is what is known as chalk coated, and the resulting smooth surface assists a clear design. During the war a substitute paper was used. This had little or no coating, and collectors think a good deal of these paper varieties.

Now for a few words about the designs used. The 2c., 40c., and 10r. depict a sail fish, which is to be found in abundance in and around the islands. Next we get the giant tortoise, which appears on the 3c., 25c. and the 2.25c. These grow to a tremendous size, and are said to live to a great age. Then we have the interesting Coco-de-Mer, a palm which I understand not only grows on the sands, but is to be found nowhere else in the world. This design has been used on the 9c., 50c. and 1.50c. The fourth design shows another unique object, the fishing pirogue. Again three values have been selected to show this extraordinary fishing boat, the 15c., 20c. and 45c. Finally we have a map of the islands on the remaining three stamps, the 18c., 1r., and 5r. values.

In the past photogravure stamps have met with a certain amount of criticism, but the simple designs in such rich colouring as have been used for Seychelles' new set will surely disarm the critics. Fortunately, while a complete set will cost getting on for two pounds, a short set showing all the five designs will not cost more than about a shilling, so we can afford this at least.

SOVIET STAMPS STAMP *FREE*

ABSOLUTELY FREE. If YOU write and ask to see a Selection of Windsor Stamps on Approval, the Windsor Stamp Co. will send to **YOU** this remarkable **RUSSIAN** stamp **ABSOLUTELY FREE.** It has everything! Of unusual shape and printed in black and red, it was issued in 1946 for the 25th Anniversary of the Soviet Post Office and shows a map of Russia on which are nine recent Soviet Stamps, and also shows an Aeroplane, a Train and a Ship. It will add lots of interest and value to your own collection. To obtain it just write for **Soviet Stamps Stamp Free** and ask to see **a Selection of Windsor Stamps on Approval**; enclose 2½d. stamp for postage to you and post without delay, addressed to

WINDSOR STAMP CO. (Dept. M), UCKFIELD, SUSSEX

UNUSED KING GEORGE VI

A fine packet of unused British Colonials of the late reign from the Cayman Islands, new Falkland Islands (only just issued!), Dominica, Grenada, Burma, Kenya, Uganda and Tanganyika, and Morocco Agencies (Silver Wedding) sent free to all applicants for Approvals enclosing 2½d. postage.
★ **Note new address** Mention M.M.

R. D. HARRISON
20, PARK ROAD, HODDESDON, Herts.

MYSTERY EXCHANGE PACKETS!

Exchange your "twicers" FREE from our guaranteed unsorted Free Exchange Packets which have circulated the World over. Different, profitable and interesting without payment. Details with 5 different NIGERIA also FREE with APPROVALS. ENCLOSE POSTAGE. Dealers Supplied. Overseas Agents Wanted.

ASTLEY & CO. (M)
103, CADMAN CRESCENT, WOLVERHAMPTON

FREE! THE ROYAL VISIT TO CANADA ISSUE FREE TO ALL ASKING FOR OUR FAMOUS APPROVALS & ENCLOSING 3d. STAMP.

FRANCIS CURTIS LTD. (DEPT. MZ)
226, BAKER ST., LONDON N.W.1

FREE "WORTH WHILE" OFFER
10 FINE USED GEORGE VI COLONIALS

Free to all applicants who send 2½d. for postage and ask to see a selection of my "WORTH WHILE" approval sheets. You will be pleased, I know.
JOS. H. GAZE, 10, Pimlico Road, CLITHEROE, Lancs.

100 DIFFERENT STAMPS FREE

(including TRIANGULAR and PICTORIALS)
To Approval Applicants enclosing 2½d. postage.
N. JOHNSON (Dept. M.M.), 19, Hillside, Slough, Bucks.

YOUR DUPLICATES PROBLEM SOLVED

Details of genuine FREE EXCHANGE scheme post free. Approvals from ½d. upwards. Want Lists—let me help you with those elusive items. Just state countries and S.G. Cat. Nos.
A. DONNELLY (M), 1, ABINGDON ROAD, LUTON, BEDS.

FREE 50 different incl. pictorials (val. 5/-). Send 2½d. for discount approvals incl. pictorials at ½d.
G. M. WALKER, 13, BROOM ROAD, HALE, CHESHIRE

FREE!

TO ALL COLLECTORS
4 STAMPS OF GOLD COAST
BARGAIN - 50 CHINA 1/3

Send 2½d. Postage

G. P. KEEF — WILLINGDON — EASTBOURNE

Large Packet of **Colonial and Foreign Commemoratives Free.** Include **Victories, Silver Wedding and U.P.U.s,** from **Ceylon, Switzerland, Nigeria, Sweden, Holland, Portugal, South Africa,** and is **absolutely free.** Simply request my discount approvals and enclose 3d. stamp.
John H. Abel, 53, Green Close, Sturminster Newton, Dorset

FREE GIFT OF STAMPS

to every applicant for approval books. The GIFT contains 30 British Colonials including 8 K.G. VI mint—no Great Britain. Good discount is given and a list of 98 Gifts is sent. These can be chosen by you and vary in value according to the money sent for purchases. They include K.G. VI Silver Jubilees; ALL the Colonial Victory sets mint; and Foreign stamps. 3d. postage please.

C. A. RUSH, 38, Queen's Avenue, Whetstone, London N.20

JAMBOREE STAMP FREE!

A most attractive stamp recently issued by Jamaica to commemorate the Scouts Jamboree will be sent **FREE** to all who enclose 2½d. postage and request a selection of our approvals. The first 100 applicants will receive in addition **FOUR** unused K.G. VI stamps, so hurry with your application to:

THE GEM STAMP CO.
514, FAIRFAX DRIVE — WESTCLIFF — ESSEX

★ CHANNEL ISLES ★

JERSEY MINT SET 1943, ½d., 1d., 1½d., 2d., 2½d., 3d., also 1948 1d., 2½d. These 8 scarce stamps for 7/6.
HILLIER, 10, ARTHUR ROAD, MARGATE

3,000 STAMPS FREE!! Send 2½d. for details of this marvellous gift & approvals.
YEOMAN, 18, DEVON ROAD, HERSHAM, SURREY

FREE—STAMPS CATALOGUED 5/-
to applicants for ½d. approvals
COX, 17, STONELEIGH PARK ROAD, EWELL

TOKELAU ISLANDS Complete Pictorial Mint Set **FREE.** Enclose 2½d., request approvals.
WATSON, 85, Larkswood Road, Chingford, London E.4

For other Stamp Advertisements see also pages 232 and xvi.

Stamp Gossip

HIGHWAYS AND BYWAYS

A READER has submitted a stamp from Peru that neither he nor his friends can find a place for in their printed albums. The stamp is one of a set of nine issued last September by Peru to commemorate the "Fifth Pan-American Highways Congress."

It was the small overprint that had puzzled the questioner. Apparently Peru had prepared stamps to commemorate the "VI Postal Union Congress," and as these had not been used, they were overprinted for this new purpose. It is probable that some values are quite scarce, particularly the top value of 10 soles, so a look-out for some of these stamps may pay dividends.

FIRST IN THE FIELD

It will be some time before any stamps specially designed for the new reign will be issued, but collectors accept stamps as belonging to the particular period when they are issued, providing that they carry no portrait of the previous monarch. In this way the new set for Brunei, which should really have come out 1st February, but which did not actually appear until 1st March, will be classed as a "QE" issue. The set for Seychelles, which came out about the same time, will be considered a K.G. VI set, for this bears the portrait of the late King George VI.

There are only two designs for the new Brunei set. One shows a portrait of His Highness the Yang Di-Pertuan Sultan Brunei; the other, which is illustrated, has a view of the River Kampong. Those funny looking buildings in the middle of the stream make up Brunei Town, and anyone can own a house there for me!

If any curious reader wants to know what that double canopied umbrella to the left is, it can be explained that it is the Arms of Brunei.

CRISTOBEL COLON

In spite of what may be said to the contrary some of the stamps issued during the past few years are magnificent, and they simply cannot be equalled in design or technical excellence by any of the much lauded "classical" issues of many years ago.

This comment is the result of viewing the latest set issued by San Marino, in honour of Christopher Columbus. There is not the slightest postal need for such a set, but the production of such beautiful stamps fully justifies their existence. Even if you can only afford a short set, do not hesitate to buy one if real art in miniature interests you.

There are 12 stamps in the ordinary set, with one air stamp, and the price for the lot is about ten shillings.

KING OF EGYPT AND SUDAN

British collectors cannot but be interested in the stamps issued by foreign countries that claim territory in our Commonwealth. Up to now there have only been a few of these. Argentina and Guatemala have both indulged in the pastime, in a minor degree, but now Egypt has decided to join in the game. Not only have all its stamps, ordinary postage, air and express, been overprinted "King of Egypt and Sudan" in Arabic, but a special issue was released on 11th February to celebrate the thirty-second birthday of King Farouk and these stamps bear the claim to Sudan not only in Arabic, which few people in the West would understand, but also in French.

Actually there are three stamps. They are colourful, and British collectors with their easygoing tolerance are buying them just as usual.

CEYLON

It will be remembered that last month we illustrated a Ceylonese stamp printed in Switzerland. Now we show one of a set of two for the same country printed by Harrisons, the firm that prints our own stamps, and it will be interesting to compare the work of the two world-famous firms of stamp printers.

This set of two was issued in honour of the Colombo Exhibition. The release date had been originally planned for 16th February, but it was subsequently changed to 23rd February. The design is the same for both stamps, and it is exceedingly interesting. First of all the centre ornament is the mace presented by the British Parliament to its opposite number in Ceylon.

But it is the four drawings in the corners to which I would like to draw attention. As has been mentioned, the printers were Harrisons, who printed the "Victory" stamps of Great Britain. Now if you will compare a copy of the 2½d. of that set with one of these latest stamps of Ceylon, you will notice that there is too great a similarity in the design for it to be an accident, and it would seem almost certain that one person designed both stamps. The designer of the British stamps was Mr. H. L. Palmer.

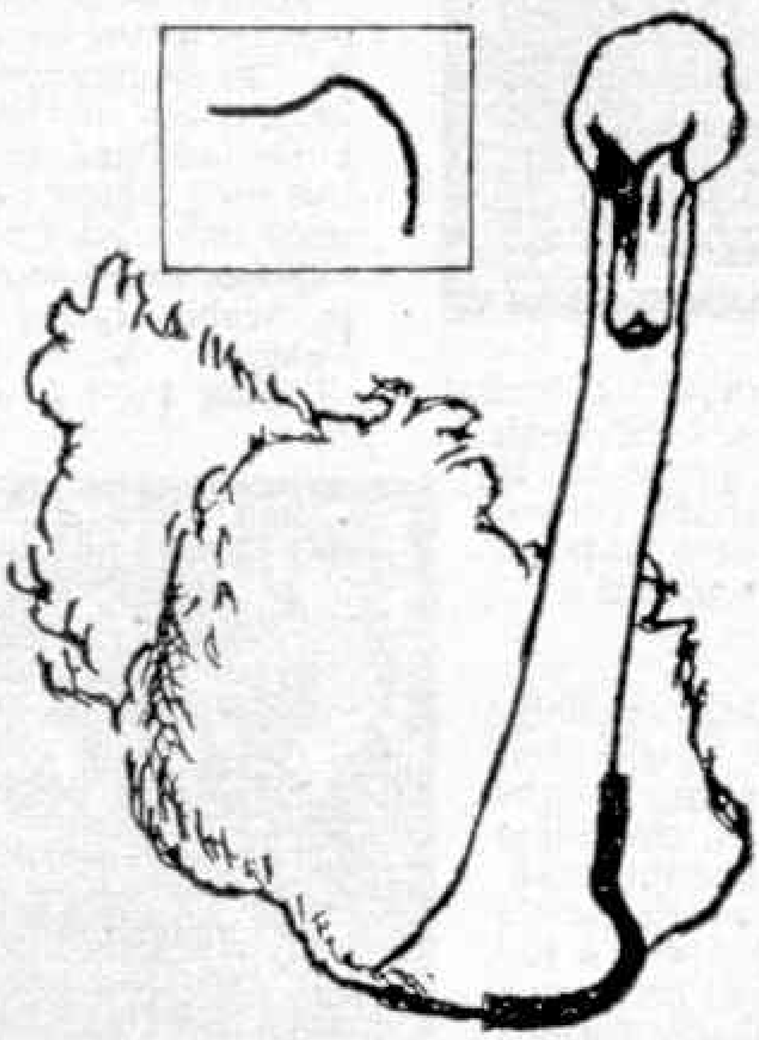
Competitions! Open To All Readers

Prize-winning entries in "M.M." competitions become the property of Meccano Ltd. Unsuccessful entries in photographic, drawing and similar contests will be returned if suitable stamped addressed envelopes or wrappers are enclosed with them.

Sketchograms

This month we announce a Sketchograms Competition, a type of contest always very popular both with our artist readers and with those who profess to have little skill with pencil and brush.

For the benefit of new readers we must explain that this contest calls for no greater skill than the ability to include a given line in a simple sketch. In this instance, the "Sketchogram" is the curved line in the box on this page, and competitors are required to incorporate the line in an original sketch in such a manner that it forms an essential part of the outline. In the drawing on this page the sketchogram is shown incorporated in the lower part of the neck of the swan, and for explanatory purposes it has been thickened considerably to make it clearly visible.



Competitors are asked to submit original sketches in which the line is used in a similar way. It may appear in the sketch as many times as the competitor desires, and can be tilted to any angle or turned upside down if desirable. The drawing of the swan must not be copied, of course. Competitors who succeed in incorporating the sketchogram more than once will be given credit for the effort, but a bold and simple drawing in which it appears but once and is immediately obvious will stand a better chance of success than a complicated drawing in which the sketchogram appears several times merely as a minor feature.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. There will be separate overseas sections, and in each section prizes of 21/–, 15/- and 10/6 will be awarded for the best entries in order of merit, with consolation prizes for other good efforts.

Each drawing submitted must be on a separate sheet of paper, on the back of which must be written the competitor's name, address, age, and section in which it is entered. Entries must be addressed "*Sketchograms, Meccano Magazine, Binns Road, Liverpool 13.*" Closing dates, Home Section, 30th June; Overseas Section, 30th September.

Can You Plan a Hornby Layout?

This month we present a competition that should interest all owners of Hornby Gauge "0" trains. We invite such owners to design a railway layout to fit a space 12 ft. by 6 ft.

The track components used must all be within our current Hornby range. In addition to showing the actual track layout, the positions of accessories such as stations, signal cabins and signals should be indicated. Drawings can either be in ink or in colour. The judges will take as a first consideration the operating possibilities of the layout submitted, but neatness and general presentation also will be taken into account. A list of rails and accessories required for the layout should be attached to each diagram.

There are two sections in the competition, for Home and Overseas readers respectively, and in each section there will be prizes of 21/–, 15/– and 10/6, together with consolation prizes for other deserving efforts. Each entry should bear the full name, address and age of the competitor, and envelopes containing entries should be marked "*May Hornby Layout Planning Contest, Meccano Magazine, Binns Road, Liverpool 13.*" The closing date in the Home Section is 30th June, and in the Overseas Section, 30th September.

There will be a similar contest for owners of Hornby-Dublo Trains shortly. In the meantime they should try their skill in this contest.

May Photographic Contest

The fifth of our 1952 series of photographic contests is a general one in which we invite readers to submit prints of any subject. Each competitor may submit only one photograph, which must have been taken by him, and on the back of his print must be stated exactly what the photograph represents, also his age must be given.

The competition will be in two sections, A for readers aged 16 and over, and B for those under 16. Each competitor must state in which section his photograph is entered. There will be separate overseas sections, and in each section prizes of 21/–, 15/– and 10/6 will be awarded. Entries should be addressed "*May Photographic Contest, Meccano Magazine, Binns Road, Liverpool 13.*" The closing date in the Home Section is 31st May, and in the Overseas Section, 30th August.

Competition Results and Solutions

HOME

NOVEMBER 1951 MODERN INVENTIONS CONTEST

1st Prize: R. D. Worrall, Gosforth. 2nd Prize: D. Frost, Hitchin. 3rd Prize: B. Hogarth, Sheffield 10. Consolation Prizes: M. Richardson, Tettenhall; W. Whitaker, Dewsbury; H. Waugh, Armagh, N.I.

NOVEMBER 1951 LOCOMOTIVE CONTEST

1st Prize: J. S. Line, St. Albans. 2nd Prize: R. Simmonds, Abingdon. 3rd Prize: C. Hayward, Liverpool 19. Consolation Prizes: T. Easdale, Bishopbriggs; J. D. Norton, Liverpool 22; A. Mayor, Kendal.

DECEMBER 1951 PHOTOGRAPHIC CONTEST

1st Prize, Section A: L. Hobbs, Dartmouth; Section B: A. J. Bloom, Eccles. 2nd Prize, Section A: J. R. Hill, Liverpool 23. Section B: D. Campbell, Lincoln. 3rd Prize, Section A: P. Lambert, Harrogate; Section B: A. Neilson, Glasgow. Consolation Prizes: Section A: A. J. Nicholson, Portsmouth; A. R. Brown, Isleworth; J. Thomson, Hull. Section B: J. M. Saville, York; D. R. Forsyth, Cheadle Hulme; R. A. Rees, Cardiff.

DECEMBER 1951 CAR FACES CONTEST

1st Prize: M. D. Hill, Bolton. 2nd Prize: G. W. A. Fogarty, Portadown, N.I. 3rd Prize: N. G. Fraser, Edinburgh 9. Consolation Prizes: D. W. Blacklock, Cockermouth; I. Macfarlane, Stafford; B. H. Dunham, Norwich; D. McLeod, Anstruther; P. D. Purvey, Shifnal; J. F. W. Paige, Chelsfield; A. L. J. Smith, Malvern; R. C. Taylor, Sheffield 11; D. R. MacGregor, Braintree; J. D. Rhodes, Baildon.

OVERSEAS

AUGUST 1951 HOLIDAY STORY CONTEST

1st Prize: N. Sparks, Johannesburg, S. Africa. 2nd Prize: S. Arnold, Dublin, Irish Republic. 3rd Prize: J. P. Sparham, Adelaide, Australia. Consolation Prizes: P. Mirrissey, Enniscorthy, Irish Republic; R. W. Drake, Madrid, Spain; J. D. Gold, Lagos, W. Africa.

AUGUST 1951 NAMED TRAINS CONTEST

1st Prize: D. W. Daniel, Regina, Canada. 2nd Prize: F. J. Oakland, Dunedin, N.Z. 3rd Prize: E. Morris, Rosario, Argentina. Consolation Prizes: J. A. Gomes, Bombay, India; P. Martin, Dublin, Irish Republic; A. N. Smith, Genoa, Italy.

SEPTEMBER 1951 PHOTOGRAPHIC CONTEST

1st Prize, Section A: C. J. S. Aston, Aalborg, Denmark; Section B: B. S. Reid, Bruges, Belgium. 2nd Prize, Section A: O. Watkins, Durban, S. Africa; Section B: J. D. Thomas, Auckland, N.Z. 3rd Prize, Section A: G. D. Mansergh, Remuera, N.Z.; Section B: K. Ives, Berne, Switzerland. Consolation Prizes: R. Burton, Dublin, Irish Republic; D. McNee, Greymouth, N.Z.; G. H. Read, Johannesburg, S. Africa; R. Yeoman, Chilwell, Australia; G. O. Goode, Moss Vale, Australia; A. Fakim, Mauritius; D. McKenzie, Christchurch, N.Z.

SEPTEMBER 1951 WORD BUILDING CONTEST

1st Prize: S. B. Karsenbarg, Rotterdam, Holland; 2nd Prize: E. Saunders, Blenheim, N.Z. 3rd Prize, G. Lee, Timaru, N.Z. Consolation Prizes: D. Moran, Dusseldorf, Germany; K. J. Edwards, Calgary, Canada; F. T. Anderson, Jamaica, B.W.I.; K. G. Thomas, Calcutta, India; T. V. Rosenberg, Haifa, Palestine; H. T. Humphreys, Montreal, Canada.

SEPTEMBER 1951 TRACK CONTEST

1st Prize: L. G. Poole, Melbourne, Australia. 2nd Prize: J. A. Gomes, Bombay, India. 3rd Prize: A. E. Russouw, Pietermaritzburg, S. Africa. Consolation Prizes: D. J. R. O'Shea, Kenmare, Irish Republic; B. D. Connelly, Lyons, France.

SOLUTIONS

AUGUST 1951 NAMED TRAINS CONTEST

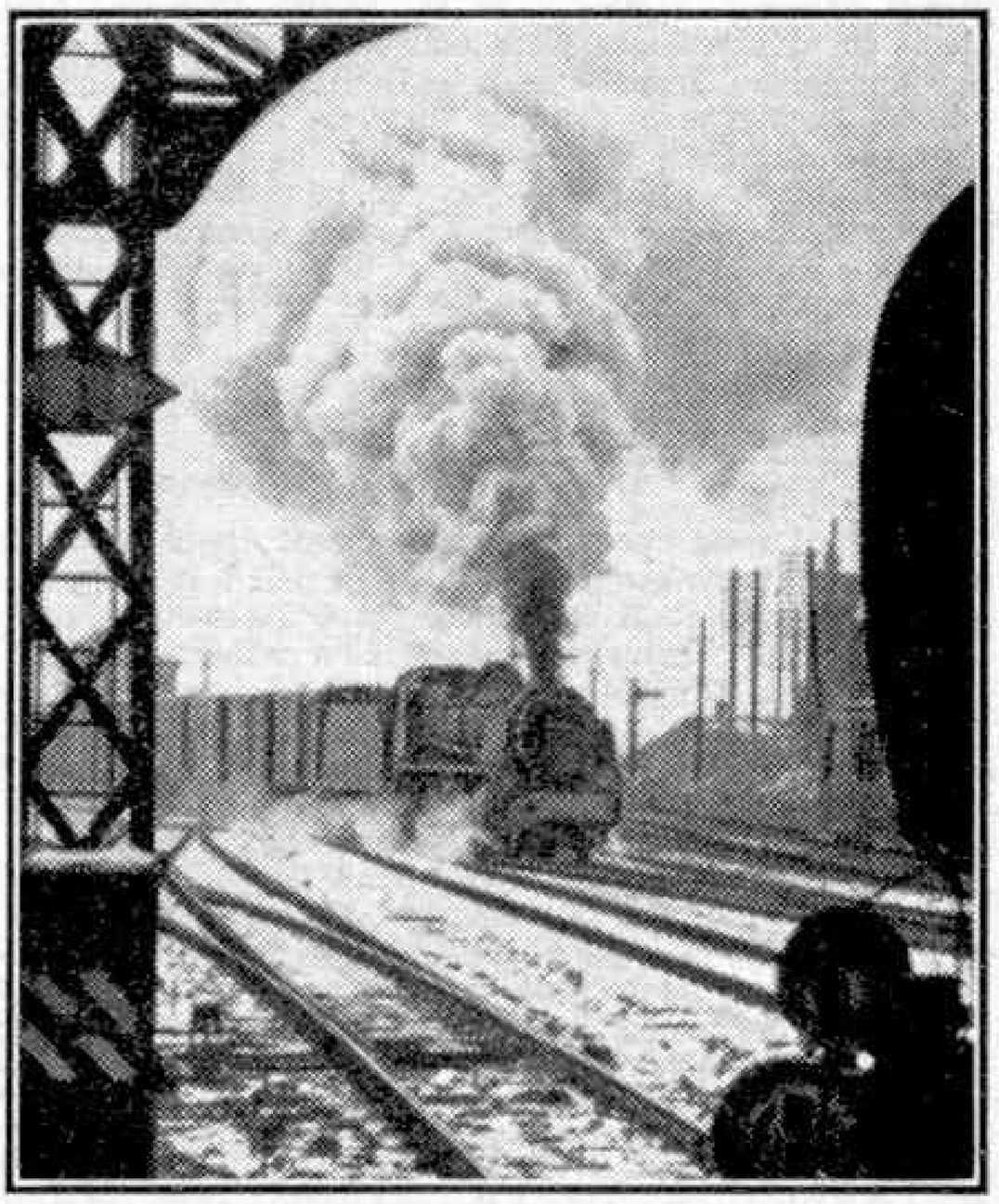
1. *"The Red Rose"* L.M.R. Liverpool (Lime Street) and London (Euston). 2. *"The Norfolkman"* E.R. London (Liverpool Street) Ipswich and Norwich. 3. *"The Rocky Mountain Rocket"* C.R.I. and P. Railroad, Chicago, Denver and Colorado Springs. 4. *"The Day Continental"* E.R. London (Liverpool Street) and Harwich. 5. *"Spirit of Progress"* Victorian Railways (Australia) Melbourne and Albury. 6. *"Golden Arrow"* S.R. London (Victoria) and Dover, connecting with *"Fleche d'Or"* S.N.C.F. Calais and Paris. 7. *"The Master Cutler"* E.R. London (Marylebone) and Sheffield. 8. *"Enterprise"* G.N.R. (I) and C.I.E. Belfast, Dublin and Cork. 9. *"The Red Dragon"* W.R. London (Paddington), Cardiff and Carmarthen. 10. *"The Yorkshire Pullman"* E.R. Harrogate, Bradford, Hull and London (King's Cross).

OCTOBER 1951 TUNNELS CONTEST

1. Redhill, L.M.R. 2. Headstone, L.M.R. 3. Woodhead, E.R. 4. Waterloo, L.M.R. 5. Copenhagen, E.R. 6. Sevenoaks, S.R. 7. Abbot's Cliff, S.R. 8. Shepherd's Well, S.R. 9. Quarry, S.R. 10. Primrose Hill, L.M.R.

NOVEMBER 1951 MODERN INVENTIONS CONTEST

1. The Aeroplane. 2. Radar. 3. The Thermionic Valve. 4. Stainless Steel. 5. Atomic Power. 6. Modern Plastics. 7. The Gyro Compass. 8. Television.



N1 class locomotive (S.R.) getting away to a good start from Tunbridge West Yard. Prize winning photograph submitted by J. E. Turley, Tunbridge Wells, in the February 1952 contest.

Ceremonial of the Sea—(*Continued from page 198*)

within the last century it was the rule for a bottle of wine to be opened so that a toast might be drunk to the success of the ship, the rest of the liquid being spilled on the ship. Nowadays, the bottle is never uncorked, the toasts being given at the reception which follows the launching.

When lady sponsors for new ships came into fashion, during the 18th century, the bottle began to acquire ribbons, both as a decoration and also to reduce the risk of accident from a bad aim. Unfortunately, some bottles were so be-ribboned that their padded exteriors were difficult to break.

Several shipyards now use an elaborate device for avoiding all such mishaps. The lady merely has to press a button, or pull a lever, for the bottle to do its duty. The ship is simultaneously released from her checking gear and slides away into the water. It is the custom for the sponsor of a ship to receive a memento of the occasion, generally a piece of jewellery, but sometimes a more practical gift such as a box of linen or even a sewing machine. The ribbons decorating the ship are scrambled for by the spectators. Once the ship is clear of the ways the shipyard apprentices are grabbed by the shipwrights and given a ducking in the water so that they will remember the occasion.

Foreign countries have their own customs when christening a ship. In Greece, for example, they use a pomegranate instead of a bottle of wine. The number of its seeds symbolises multitude and prosperity, the red colour of the fruit standing for gaiety and happiness.

Across America by "Greyhound" Bus—

(*Continued from page 201*)

It was built by the Government to house the workers engaged on the massive project, and is now a green oasis, 2,000 ft. above the river, in the midst of a scrubby desert.

Within a year it grew from nothing into a community of a thousand homes: today it has a population of around 5,000. I walked among trees planted in 1932, along avenues bordered with white cottages and lawns on which hoses were constantly playing in the hot sunlight. There was a little museum I visited on the very edge of Boulder City: its windows looked over the desert.

I caught the afternoon bus for Kingman, Arizona, en route to the next wonder—the Grand Canyon. But first I had a huge chunk of apple-pie and cream in the bus station and washed my thirst away with a glass of ice-cold milk.

A New Zealand Wonderland—

(*Continued from page 210*)

a party of four spectators and swept them to their deaths in its awesome depths. In 1915 it blew up so violently that it demolished the Accommodation House, fatally injuring the guide's wife and child. A few weeks previously I had walked across Frying Pan Flat nearby with a most uneasy feeling. This was fully justified, for less than a month later Waimunga blew out in a fresh place just where I and other sightseers had stood so shortly before.

Waimunga seems to have spent its fury on those last two destructive outbursts in 1915, for it has not erupted since, though of course it may do so at any time. Some geysers, like volcanoes, are completely unpredictable; Waimunga was indeed a huge mud-volcano rather than a geyser, for when erupting it belched forth incredible quantities of mud and stones as well as boiling water.

No résumé of New Zealand's thermal region would be complete without mention of our active volcano, Mt. Ngauruhoe, 7,515 ft. high, which stands in line with Mt. Tongariro, 6,500 ft., and Mt. Ruapehu, 9,000 ft. The latter is crowned with perpetual snow and is the only glacier peak in the North Island.

The Mighty Matterhorn—(*Continued from page 195*)

the western end of a line of great peaks.

Unlike the Jungfraujoch Railway, described and illustrated in an article in the March "*M.M.*," the Gornergrat Railway is almost entirely in the open air, and passengers see wonderful views in all directions throughout the ascent. There is only one short tunnel, and the most remarkable engineering feature of the line is a steel viaduct by which it is carried high over a river flowing down through a deep gorge. In places the gradient is one in five, so rack and pinion propulsion is necessary throughout. Each electric motor coach has two 125 h.p. motors, and is capable of hauling a trailer car. The average speed is five miles an hour, and about 70 min. are required for the complete journey from Zermatt, the lower terminus, which itself is at a height of 5,315 ft. above sea level.

What Shall I Build Next?—(*Continued from page 225*)

Public service vehicles, such as taxis, omnibuses, trolley buses, and tramcars, provide another prolific field for the model-builder. A very pleasing example of a trolley bus is shown in Fig. 6. It represents one of those in service in London, and was built by N. C. Ta'Bois, Woodford Green. Readers will notice that excellent use is made of Flexible and Strip Plates in the construction of the body, and will realise how much the appearance is enhanced by the neat manner in which the body is shaped to provide the wheel openings. The trolley collector gear is very neatly and realistically assembled.

Fire engines and other fire-fighting vehicles make fascinating models, and the reproduction of their mechanisms and fittings will provide plenty to test the ingenuity of the constructor. Then there are traction engines, heavy goods lorries, tower wagons and petrol tank lorries. The list of these special purpose vehicles is almost inexhaustible, and the model-builder who takes up this branch of model-construction probably will find that his greatest difficulty is to decide which vehicle to choose as his subject!

This Month's Special Articles

	Page
The Mighty Matterhorn	194
Ceremonial of the Sea .. .. by Morrys Rodney	196
Modernising a Scottish Locomotive Depot	199
Across America by "Greyhound" Bus—I .. .. .. by Bernard Llewellyn	200
Flying at Ground Level .. by John W. R. Taylor	202
B.R. Wagons with Air-Operated Doors	205
A New Zealand Wonderland .. by V. May Cottrell	208
Western Adventure .. .. by H. Gordon Tidey	212

Fireside Fun

"Mother, you're always giving Johnny more pudding than me."

"Of course. He's bigger, you see."

"Crumbs. He always will be if you keep on like that."

* * *

"Hurry down Mike. There's a brick arter yer!"

* * * *

Old Timer: "So they're putting you in with me, are they? These prisons are getting crowded. How long are you in for?"

Newcomer: "Five years."

Old Timer: "Oh, I'm here for ten. You take the bed near the door; you're getting out first."

* * * *

Prospector: "Just slap the bacon in the pan, partner. I've no use for fancy cookery book stuff."

Partner: "Why? Didn't it work right?"

Prospector: "Not from the cookery book I got. It was just hopeless. Every recipe said 'Take a clean dish,' an' where was I to get that?"

* * * *

"I thoroughly enjoy Kipling. Don't you?"

"Kipling? Well, I don't know really. I'm not sure that I know how to kipple."

* * * *

"What on earth do you mean by letting your unruly brat in this so-called Indian outfit pull my wig off?"

"Oh, is that all it is, sir. For a moment I thought the young imp had scalped you."

* * * *

Judge: "If you only entered the shop to pick up a packet of cigarettes, what were you doing at the safe when you were arrested?"

Burglar: "Putting in the money for the cigarettes."

* * * *

"I don't like this school report of yours, my lad."

"No, Dad. I told the Head you wouldn't, but he insisted on sending it."

BRAIN TEASERS

CAN BE READ TWO WAYS

Here is an unusual word square, in which certain words are already entered and several E's are scattered about. The idea is to fill in the blank spaces with letters that will make up seven words, the words in the columns being exactly the same as those in the corresponding rows. The diagram makes this clear; both the first column and the first row read BOASTER.

S.W.C.

B	O	A	S	T	E	R
O				E		E
A			E			S
S		E				E
T	E					N
E						T
R	E	S	E	N	T	S

* * * *

MORE MATCHWORK

Take 22 matches out of a box, and arrange them to form eleven squares.

This will be easy, but now add four matches, and rearrange them so that the number of squares becomes 23. When trying this puzzle keep in mind the fact that the squares are of different sizes.

* * * *

NAMES MAKE A SUM

When Donald is added to Gerald the result, strangely enough, is Robert. Here is the sum set out.

DONALD
GERALD

ROBERT

This of course is an addition sum in which letters have been substituted for the digits. D represents 5. Can you complete the change from letters to numbers?

J.B.

* * * *

NO HALF EGGS IN THIS

This is an old puzzle that will give new readers a few minutes' enjoyment. If an egg and a half is laid by a hen and a half in a day and a half how many eggs will six hens lay in two days?

* * * *

SOLUTIONS TO LAST MONTH'S PUZZLES

The words to which the clues in our first puzzle last month led were RAIL, LEND, PACK, BEDSER, LATIN and LUNDY. The three cars were Packard, Austin and Bentley.

The six words of the pyramid in our second puzzle were I, IN, NIL, LINE, ALIEN and INHALE.

* * * *

"Why do you employ a cross-eyed store detective?"

"Well, look at him. Can you tell whom he's watching?"

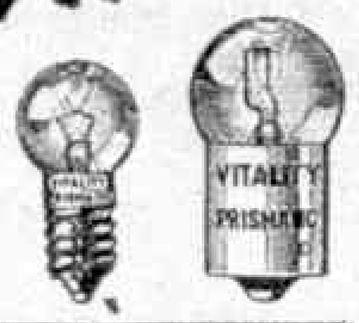
Best Quality Ship's Fittings

ADJUSTABLE MAST TUBES, complete with bottom step. $\frac{3}{8}$" diam. **16/6**, $\frac{1}{2}$" **19/-**, $\frac{5}{8}$" **21/5** ea.
FIXED MAST TUBES. $\frac{3}{4}$" diam. **6/2**, $\frac{7}{8}$" **7/1**, 1" **7/8** ea.
GOOSENECKS, complete with mast ring. $\frac{3}{8}$" diam. **7/4**, $\frac{1}{2}$" **8/7**, $\frac{5}{8}$" **9/9** ea.
BRASS SCREW EYES. $\frac{3}{8}$" **9d.** doz.
RIGGING BLOCKS. Plain, single, $\frac{3}{16}$", $\frac{1}{4}$", $\frac{5}{16}$", $\frac{3}{8}$" **3/1** doz.; Plain, double, $\frac{1}{4}$", $\frac{5}{16}$", $\frac{3}{8}$", $\frac{1}{2}$" **3/8** doz.; Stropped single, $\frac{1}{4}$", $\frac{5}{16}$" **4/3** doz.: Stropped double, $\frac{3}{16}$", $\frac{1}{4}$", $\frac{5}{16}$", $\frac{1}{2}$" **4/11** doz.
ROGERS ANCHORS. 1" length **3/1**, 1$\frac{1}{2}$" **3/8**, 2" **4/4** ea.
BRASS STEERING WHEELS. $\frac{3}{8}$" diam. **4/7**, $\frac{7}{16}$" **4/7**, $\frac{1}{2}$" **5/3** ea.
DAVITS, complete with falls. 2$\frac{1}{2}$" height **3/8**, 3$\frac{1}{2}$" **3/8** pair.
VENTILATORS, brass, mercantile type. 1$\frac{1}{4}$" height **2/6**, 2" **3/8** ea.
MUSHROOM VENTILATORS. $\frac{1}{4}$" height **11d.**, $\frac{5}{16}$" **1/3**, $\frac{3}{8}$" **1/7** ea.
BOLLARDS. $\frac{1}{4}$" height **3/8**, $\frac{3}{8}$" **4/11** ea.
RING BOWSIES, best ivorine. $\frac{3}{8}$" diam. **4/11**, $\frac{1}{2}$" **4/11**, $\frac{5}{8}$" **4/11** doz.
GAMMON IRONS. $\frac{5}{16}$" diam. **2/9**, $\frac{3}{8}$" **3/4**, $\frac{1}{2}$" **4/3** ea.
SHEET HORSES. 2" length **2/2**, 2$\frac{1}{2}$" **2/2**, 3" **2/5**, 4" **3/1** ea.
AUTO STEERING GEAR. Suitable 30" hulls. **15/4** set.
FAIRLEADS. $\frac{1}{2}$" length **1/-**, $\frac{5}{8}$" **1/3**, $\frac{3}{4}$" **1/3** ea.
HAWSE PIPES. $\frac{1}{2}$" diam. **7/1**, $\frac{1}{2}$" **9/2** set of 4.
FLANGED SIDE LIGHTS. $\frac{3}{16}$" diam. **6/2**, $\frac{1}{4}$" **6/2**, $\frac{5}{16}$" **6/9**, $\frac{3}{8}$" **6/9** doz.
LIFEBUOYS. $\frac{1}{2}$" diam. **1/3**, $\frac{5}{8}$" **2/2**, $\frac{3}{4}$" **2/2** ea.

ALL PRICES PLUS PACKING AND POSTAGE

BOND'S O' EUSTON ROAD LTD.
357, EUSTON ROAD, LONDON N.W.1
Est. 1887 'Phone: EUSton 5441-2

VITALITY PRISMATIC



CYCLE DYNAMO BULBS
Give a smooth beam of light—no dark spots.
ALL PRICES THE SAME AS FOR CLEAR BULBS

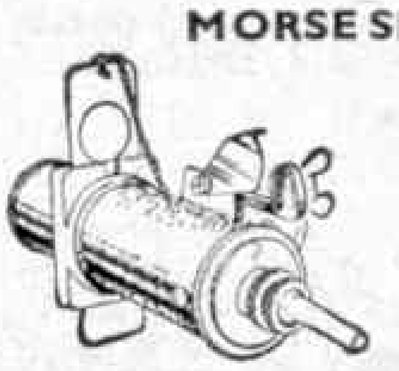
Ref.	RATING Volts	Amps	Watts	BALLOON Size	Shape	Cap	Price Exc. P.T.
FOR USE WITH LUCAS AND MILLER							
3	6	0·5	3·0	18 mm.	Ball	S.B.C.S.C.	1s. 4d.
963	6	0·3	1·8	18 mm.	Ball	S.B.C.S.C.	1s. 4d.
9	6	1·0	6·0	18 mm.	Ball	S.B.C.S.C.	1s. 4d.
When M.E.S. Capped (i.e. Screw-in) required							
52	6	0·5	3·0	15 mm.	Ball	M.E.S.	9d.
Special Types for use with RALEIGH DYNOHUBS Of High Light Efficiency and should only be used upon Raleigh							
86	6	0·2	1·2	15 mm.	Ball	M.E.S.	9d.
87	6	0·25	1·5	15 mm.	Ball	M.E.S.	9d.
88	6	0·3	1·8	15 mm.	Ball	M.E.S.	9d.
62	8	0·15	1·2	15 mm.	Ball	M.E.S.	9d.
37	8	0·15	1·2	18 mm.	Ball	Shld. M.E.S.	1s. 4d.
40	12	0·23	2·75	18 mm.	Ball	Shld. M.E.S.	1s. 4d.
FOR MOST OTHER MAKES OF CYCLE DYNAMOS							
49	6	0·3	1·8	15 mm.	Ball	M.E.S.	9d.
50	6	0·35	2·1	15 mm.	Ball	M.E.S.	9d.
51	6	0·45	2·7	15 mm.	Ball	M.E.S.	9d.
52	6	0·5	3·0	15 mm.	Ball	M.E.S.	9d.
53	6	0·55	3·3	15 mm.	Ball	M.E.S.	9d.

All Prices Exclusive of Purchase Tax. SEND FOR PRICE LIST INDIVIDUAL BULBS SUPPLIED. **No Charge for Postage.** If your dealer cannot supply, send his name and address together with P.O. for such bulbs as you require, to **VITALITY BULBS LTD. (Dept. M), NEVILLE HOUSE, NEVILLE PLACE, WOOD GREEN, N.22**

THIS MONTH'S OFFERS

BY ELECTRADIX *ESTD. 1920*

MORSE PRACTICE SET. Surplus stock, as new, comprising A.M. Morse Key, well balanced, precision made, with heavy insulated knob and solid contacts, twin coil Buzzer of robust design mounted on base and wired, space for battery. **7/6**, plus 1/- postage.



MORSE SIGNAL LAMPS, ideal for campers, light and easily carried. Metal body, 7 in. long, 2 in. dia., crackle finish, fitted lens and slide with 3 colour filters, key, lamp holder for flash-lamp bulb, 5 ft. armoured flex, all new. **7/6**, post 1/-.

TELEPHONE CONSTRUCTOR'S PARTS, comprising G.P.O. wall type pol. wood box 8 in. x 6 in. x 3 in., fitted bracket, carbon mike, Mag. bell, transformer, condenser, switch-hook and contacts, G.P.O. Receiver, connection strip, etc., and hand magneto Generators with wiring diagram, **35/-** per pair, plus 5/- carr.

CRYSTAL SETS. The Lesdix 1952 Model, wound coil, var. tuning condenser, Diode Detector, phone transformer with socket, all in bakelite case. 6 in. x 4$\frac{1}{2}$ in. x 1$\frac{3}{4}$ in., supplied with headphones, fitted cord and plug, all aerial tested, **30/-**, post 1/6. Crystal set only, **21/-**, post 1/-.

Write Dept. E.

ELECTRADIX RADIOS
214, Queenstown Road, Battersea, S.W.8
Telephone: MACaulay 2159

ASTRA

RETAIL PRICE **7/9** Purchase Tax 1/9 Extra

RETAIL PRICE **7/9** Purchase Tax 1/9 Extra

WORKING MODEL
TRAFFIC SIGNAL

Unbreakable plastic coloured lenses. 4$\frac{1}{2}$ volt flat battery can be housed in the base. Model approx. 6" high.

FROM ALL GOOD TOYSHOPS

Sole Patentees and Manufacturers:
ASTRA PHAROS LTD.
LANDOR WORKS, ASKEW ROAD, LONDON W.12

THE FUTURE IS YOURS
PREPARE FOR IT NOW

Maximum production, on which the life of the nation rests, depends on high technical skill. This gives marvellous opportunities to young men who have acquired such knowledge and efficiency as that contained in an I.C.S. Course of Instruction.

THE DEMAND FOR WELL-TRAINED MEN IS URGENT AND UNLIMITED — BUT THERE IS NO WORTH-WHILE PLACE FOR THE UNTRAINED

If you need technical training, our advice on any matter concerning your work and your career is yours for the asking—free and without obligation. Let us send you full information regarding the subject in which you are specially interested. DON'T DELAY. Make ACTION your watchword.

The successful man DOES to-day what the failure INTENDS doing to-morrow. Write to us TO-DAY.

Fees are moderate and include ALL books required

Generous Discount to H.M. Forces

The I.C.S. offer Courses of Instruction in a wide range of subjects, including:

Accountancy
Advertising
Copy Writing
Advertising Management
Architecture
Boiler Engineering
Book-keeping
Building
Business Training
Business Management
Carpentry and Joinery
Chemical Engineering
Chemistry, Org. & Inorg.
Civil Engineering
Clerk of Works
Coal Mining
Commercial Art
Concrete Engineering
Diesel Engineering
Draughtsmanship
Drawing Office Practice
Electrical Engineering
Eng. Shop Practice
Farming (Arable and Livestock)
Fire Engineering
Foremanship
Heating and Ventilation
Horticulture
Hydraulic Engineering
Illumination Engineering
Journalism (Free Lance)
Machine Designing
Maintenance Engineering
Marine Engineering
Mechanical Drawing
Mechanical Engineering
Mine Surveying
Mining Electrical
Motor Engineering
Production Engineering
Quantity Surveying
Radio Engineering
Radio Service Eng.
Refrigeration
Salesmanship
Sales Management
Sanitary Engineering
Sheet-Metal Work
Short-Story Writing
Steam Engineering
Structural Steelwork
Surveying
Telegraph Engineering
Television Technology
Toolmaking
Welding, Gas and Elec.
Woodworking Drawing
Works Engineering
Works Management

And most of the Technical, Professional, Commercial, Educational and Civil Service Exams., also for General Certificate of Education.

(Examination students are coached till successful.)

Dept. 126A, I.C.S., 71, Kingsway, W.C.2

YOU MAY USE THIS COUPON

(1½d. stamp on unsealed envelope)

INTERNATIONAL CORRESPONDENCE SCHOOLS LTD.
Dept. 126A, International Buildings, Kingsway, London W.C.2

Please send booklet on subject .....

Name..... Age.....
(BLOCK LETTERS PLEASE)

Address .....

.....

I.C.S.

YOU'LL HAVE MORE

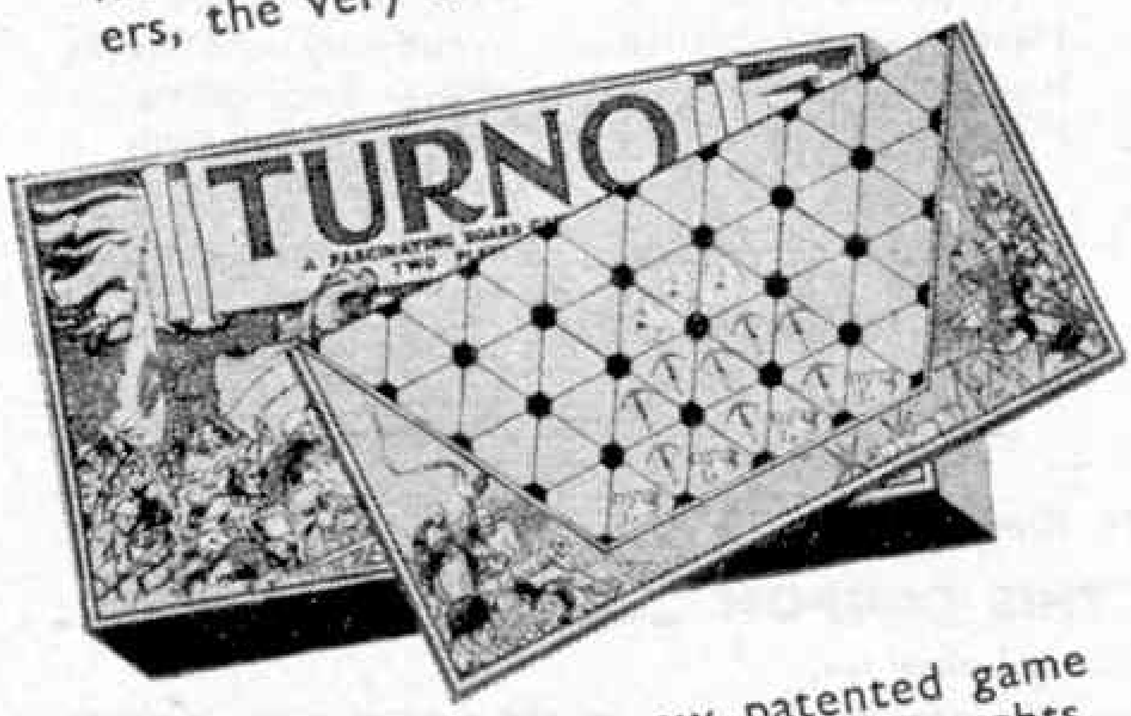
FUN

WITH

SPEAR'S GAMES

AND EVEN DAD WON'T BE ABLE TO RESIST THEM

TELL ME: The queen of quiz games. Spin the wheel and roll out the questions! Endless fun for any age. Any number of players, the very thing for your party. **7/6**



TURNO: An entirely new patented game of tactics for two players. As easy as draughts. Provides many hours of fascinating entertainment. **9/-**

If your dealer cannot supply, write for address of nearest stockist to:

J. W. SPEAR & SONS LTD.
DEPT. M • ENFIELD • MIDDLESEX

Be like Reg Harris-

...ride on

DUNLOP

CYCLE TYRES

The Choice of Champions

1H/343

If you have a camera send for a Trial Set of Chemicals

Doing the work yourself is half the fun of photography. You save money and have no end of a thrill in making the negatives and getting a few prints from them. It's quicker, too. You see the results within a few hours of taking the snaps. Start, right away, by sending for this five shilling trial set.

It comprises

- 1-oz. (25 cc.) bottle of the famous AZOL developer.
- 4-oz. tin of Acid Fixing salts.
- 2 M-Q Pactums, print developer.
- 1-oz. (25 cc.) bottle of 142.
- 25 sheets of Contact paper, size 2¼ x 3¼ inches and the instruction book which tells you how it is all done.

PRICE 5/-

includes the purchase tax, packing & postage.

Enclose P.O. Write your name and address in block capital letters and mark the front of the envelope clearly MECCANO MAGAZINE

ONLY ONE trial set can be sent under this offer. When the chemicals are used up go to the photographic dealer from whom you buy your films. He keeps a stock of everything you are likely to need and will be able to help you with much useful advice.

JOHNSONS OF HENDON LTD., LONDON N.W.4

NEW HOME PHOTOGRAPHY

You should read this book. Nearly 100 pages, 130 illustrations. Packed with all sorts of useful hints and dodges for getting good results. Get a copy today. It will help you to make better snapshots. Your dealer sells it, or a copy will be sent, post free, for 2/6. Enclose P.O. Write name and address in capitals and mark envelope MECCANO MAGAZINE

HIGHSTONE UTILITIES

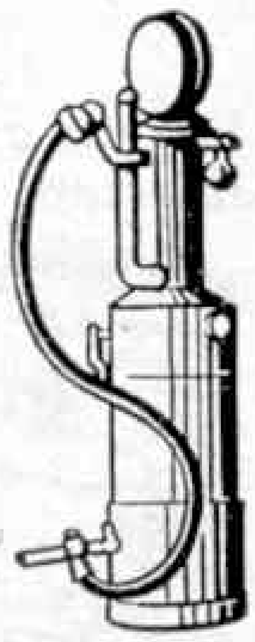
Meters. 15 v., 2½ in , m/c, **9/6**; 150 v., 2 in., m/c, **10/–**; 3.5 amp., 2 in. T.C., **6/–**; 4 amp., 2½ in. T.C., in case with switch, **7/6**; 100 m/a, 2 in., m/c, **7/6**; Units containing 2 500 microamp. movements, **6/–**, post **8d.** All meters post extra.
Bell Transformers. These guaranteed transformers work from any A.C. Mains, giving 3, 5, or 8 volts output at 1 amp., operate bulb, buzzer or bell. Will supply light in bedroom or larder, etc. Price **8/9**, post **6d.** BELLS, **6/–**.
Ex-R.A.F. 2-valve (2-volt) Microphone Amplifiers as used in plane inter-com., in self-contained metal case; can be used to make up a deaf aid outfit, intercommunication system, or with crystal set, complete with valves and fitting instructions, **20/–**, post **1/8**. Ditto, less valves, **10/–**. **Hand Microphones,** with switch in handle, and lead, **4/6**. Similar instrument, moving coil, **7/6**, post **6d.** **Mike Buttons** (carbon), **2/–**. **Moving Coil, 4/6; Transformers, 5/–**. All post **4d.** each.
Soldering Irons. Our new streamlined Iron is fitted with a curved pencil bit; 200/250 v. 50 watts, **11/6. Standard Iron** with adjustable bit, 200/250 v., 60 watts, **13/6. Heavy Duty Iron,** 150 watts, **16/6,** all post **6d. Crystal Sets.** Our latest model is a real radio receiver, fitted with a permanent crystal detector, **12/6,** post **6d.** De Luxe Receiver in polished cabinet, **18/6,** post **1/–**. Spare Permanent Detectors, **2/–** each. When ordered separately, **2/6**, with clips and screws, **2/10,** post **3d.** Headphones, brand new, S. G. Brown, G.E.C., etc., **15/–, 23/–,** and super-sensitive, **30/–,** post **8d. New Headphones, 10/–.** Balanced armature type (very sensitive), **12/6.** Both post **8d.** New **Single Earpieces, 3/6.** Bal. armature type, **4/6;** ex-R.A.F. earpiece, **2/6**, post **4d. Headphones,** in good order, **6/–** (better quality), **7/6,** all post **8d.**
Letters only. Money refunded if not completely satisfied.

58, New Wanstead, London E.11

Illustrated List sent on request with 1½d. stamp and S.A.E.

PETROL PUMPS

"0" GAUGE



Super detail Pump by SLATER

(as illustrated) **2/1½** ea.

DIE CAST MODEL

3 Types: BP — ESSO — SHELL

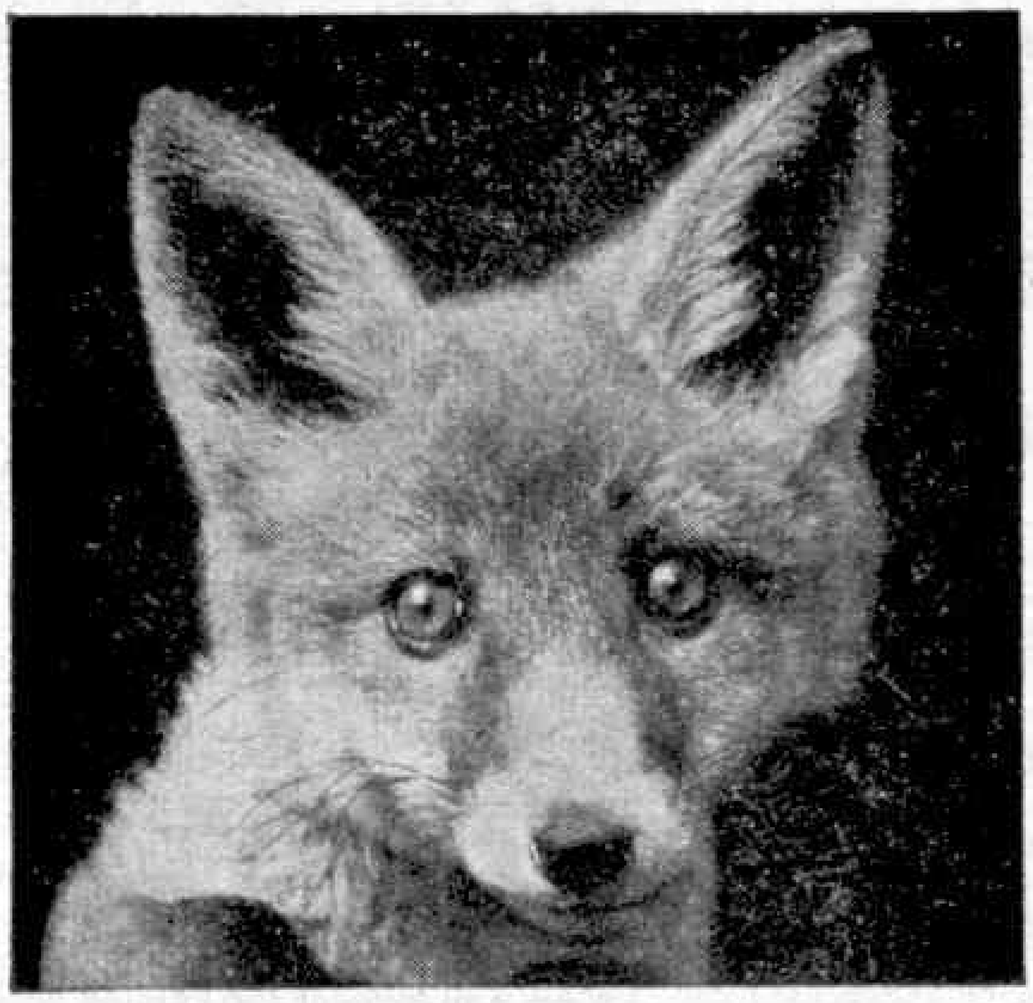
1/2 ea. Set of 3, **3/3**

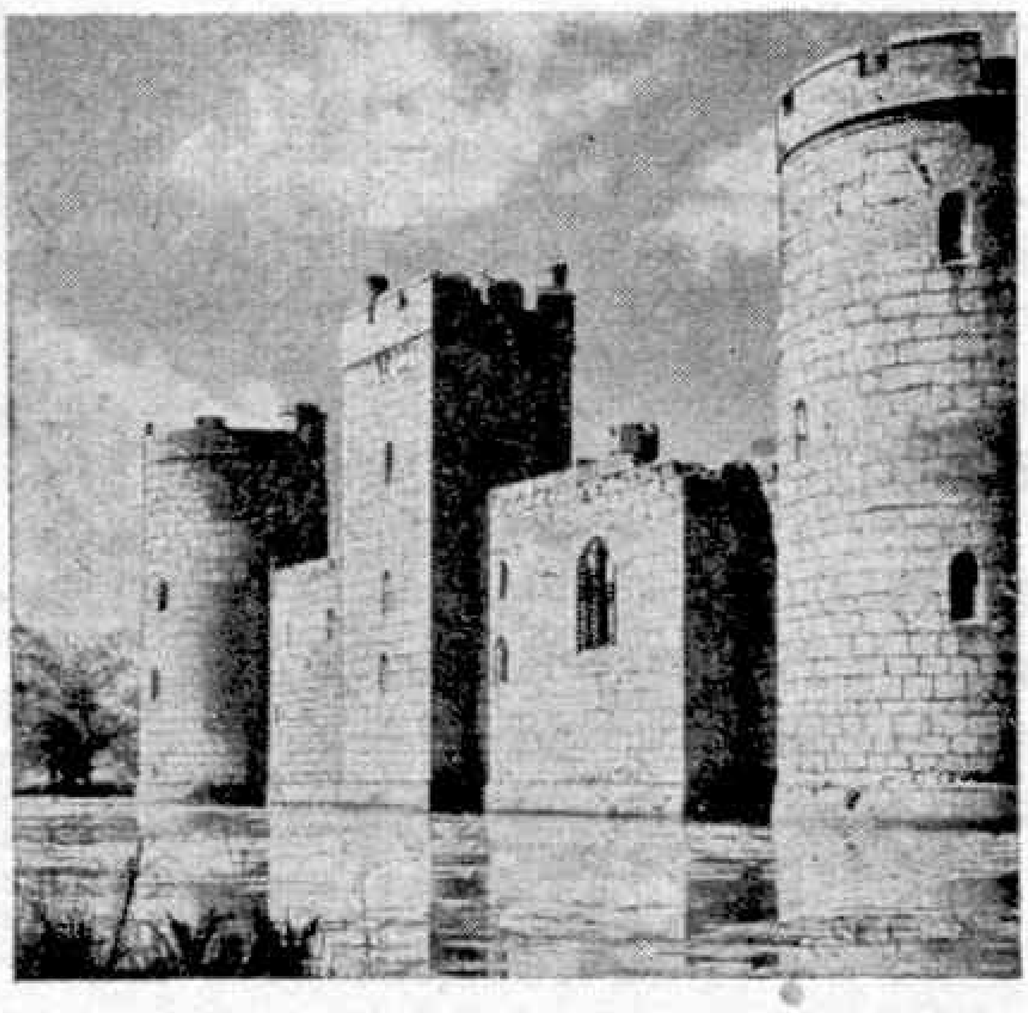
Send for FREE List of '0' MODELS available in STOCK!

GEORGE BRADSHAW

5 & 6 WESTERN ROAD HOVE • SUSSEX

FOR FACES & PLACES



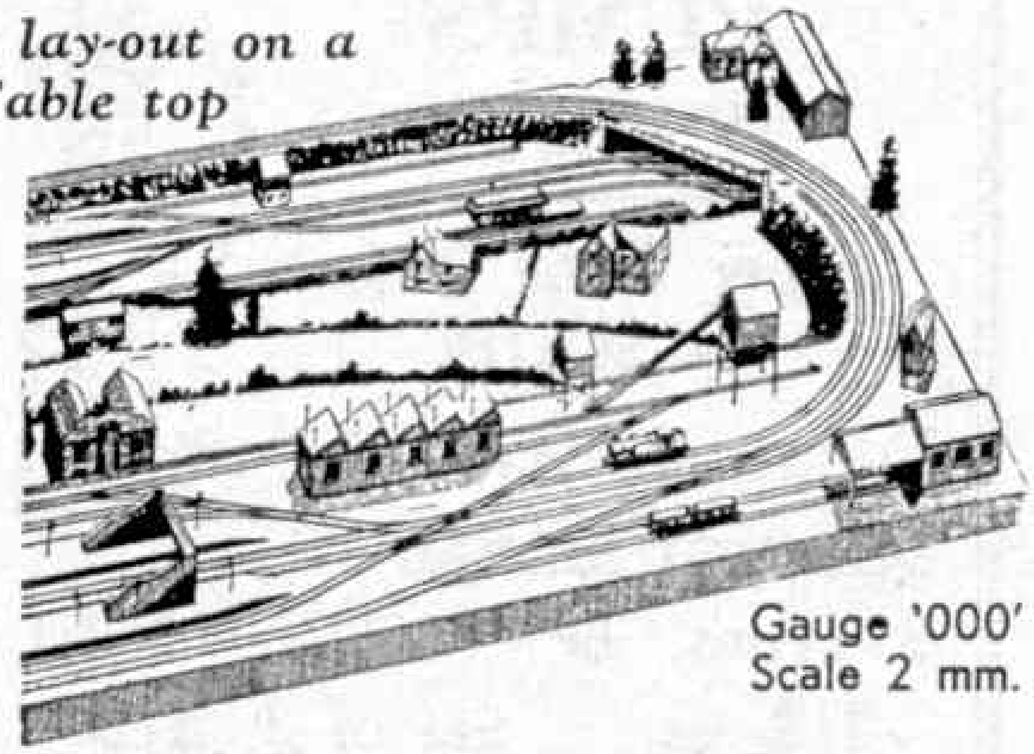


ILFORD SELOCHROME **FILM**

ILFORD SELOCHROME

A NOVEL KIND OF MODELLING—

a lay-out on a Table top



Gauge '000'
Scale 2 mm.

- **MICROMODEL TRACK CARDS** Full colour, each approx. 10" of double track. Order Straight, Curves or crossovers. ... each **2½d.**
- **'TREEMAKER' KIT** To make trees, bushes, shrubs, etc., to scale. **3/1**
- **MICROMODEL "ROLLING STOCK"** L.N.E.R. "Flying Scotsman," "Sandringham," Tank Loco. L.M.S. "Princess Royal," Diesel-Electric, S.R. "Lord Anson," "Channel Packet," etc. S.R. Passenger Coaches (2) **6d.** Goods Wagons (not colrd.) (5) **6d.** **each 4d.**

Be sure you ask for Micromodels by

MODELCRAFT

77 (H), Grosvenor Rd., London S.W.1

Postage: 1d. in 1/–. Minimum 3d.

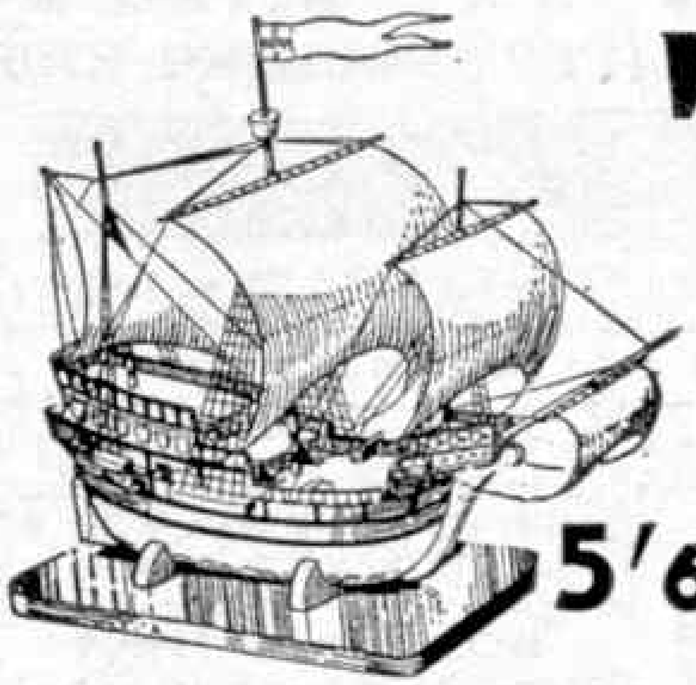
LOTT'S CHEMISTRY

Build up your Chemistry Set into a well-equipped laboratory.

Supplies of spare apparatus and chemicals are now available.

Ask to see them at your dealer or write to the manufacturers for current price list, enclosing stamped addressed envelope 1½d.

LOTT'S BRICKS LTD
Dept. M.M.3
WATFORD HERTS



THE MARY FORTUNE
Kit No. 2914

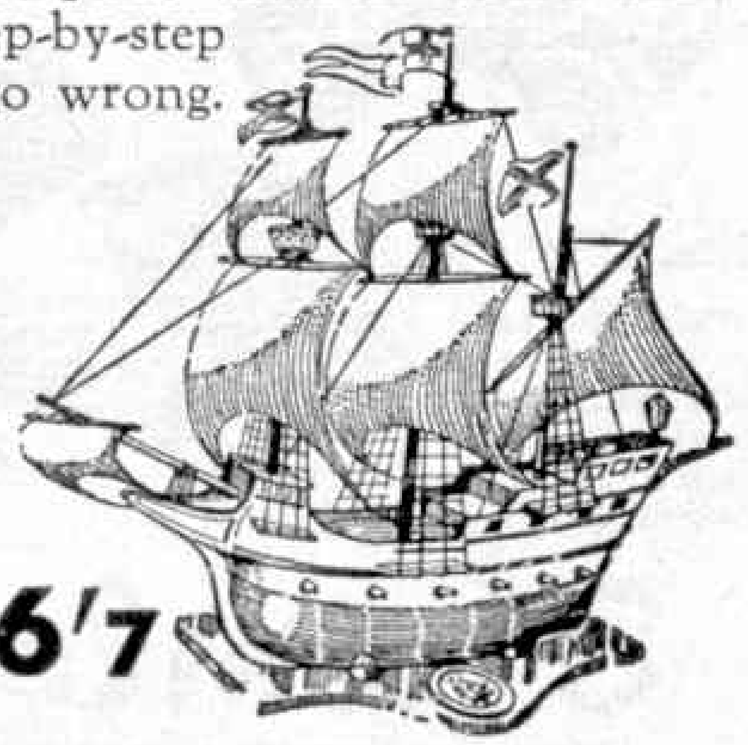
Why not make these Miniature Galleons?

Making models of old-time ships from Hobbies Kits is one of the most absorbing of all pastimes—and it's inexpensive, too. Only a fretsaw and a few tools are needed, and even the amateur will not find the work difficult. The Kits are complete with all wood and necessary parts—and step-by-step instructions. You can't go wrong.

Start to-day by getting one of these excellent Kits.

Hobbies

From Stores, Ironmongers and Hobbies Branches, or post free from **Hobbies Ltd., Dept. 96, Dereham, Norfolk.** *Illustrated leaflets of our complete range obtainable on request.*



THE ½d. GALLEON
Kit No. 2778

DO YOU PLAY TRAINS OR ? MODEL RAILWAYS

Whichever it is, it's more FUN with PECO Scale Permanent Way. There are types to suit every system, types to suit all tastes, in INDIVIDULAY, the complete components for the Home Constructor, or in PECOWAY, the Ready Assembled Straight Curvable Track that is strictly to scale.

PECOWAY STANDARD TYPE HD for HORNBY-DUBLO NOW ONLY 3/11 per 18" length. SUPER 5/4½.

For full details of PECO prices, write at once to the **PECO TECHNICAL ADVICE BUREAU** enclosing 1/6 for fully illustrated CATALOGUE and GUIDE.

THE PRITCHARD PATENT PRODUCT CO. LTD.
PECOWAY, STATION ROAD, SEATON, DEVON

WILSON'S LORRIES LTD.

Dept. M
6, Gt. Winchester St., London E.C.2

BUILD YOUR OWN
4 mm. and 7 mm. lorry kits

Send for
ILLUSTRATED CATALOGUE
8d. post free

24 "no-tools-to-make-em" outfits
and a host of Spare Parts

Minic Breakdown Lorry

Over 5" long. All-metal chassis.
Price 8/6
Postage and packing 10d. extra

Minic Dump Truck

Large-capacity hod, powerful motor.
Length 4". Price 4/3
Postage and packing 8d. extra

Minic Tip Lorry

Hand-operated tip, hinged tailboard.
Length 4½".
Price 3/11
Postage and packing 8d. extra

Hamleys
Estd 1760
HAMLEY BROTHERS LTD

200-202, Regent Street, London W.1 (our only address)
Telephone: Regent 3161

THIS IS *IT* CHAPS!

THE *"TRUFLITE"* THROWING KNIFE

A perfectly balanced Throwing Knife, 7½ in. long from the tip of its hand-ground, mirror-polished, beautifully engraved Sheffield steel blade, to the top of its unbreakable handle; complete with leather sheath, target and instructions: **9/8**; Junior "Truflite" (5⅞ in.): **7/10**; "SCOUT'S SPECIAL" 8 in. Sheath Knife: **5/4**; Super Quality Hunting Knives, 6 in.: **9/4**; 8 in.: **13/4**; 9 in.: **18/4**; all complete with leather sheaths.

DON'T MISS THEM!

Post and pkg. on each order, 8d. extra.

Robin's
MAIL ORDER SERVICE

(DEPT. M552), 100, EAST ST., LONDON S.E.17

CHEMISTRY APPARATUS

Send 2½d. Stamp for latest

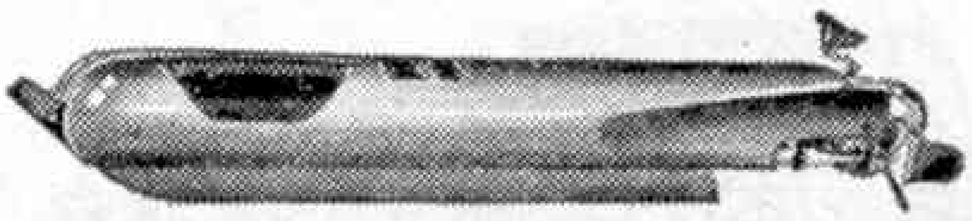
PRICE LIST

BOOKLETS:
"Experiments" 10½d.
"Formulas" 10½d.
"Home Chemistry" 2/3
Post Paid

BECK (Scientific Dept. G), 60, High Street
STOKE NEWINGTON, LONDON N.16

A DIRECT HIT!

with the 'GLENBUR' MECHANICAL TORPEDO



This power-driven watercraft, incorporating its own mechanical winding-gear has a range of up to 30 feet and produces a most realistic effect on impact with its target. The Torpedo-head is quite harmless and is released by a simple spring action.

Overall length 10" — supplied complete with spare power-bands and lubricant — it provides endless fun for all ages.

PRICE 13/11
(Postage/Packing 9d. extra)

Order now, sending postal order to:—

GLEN-BURROUGHS & Company Limited
FORMBY, LANCS., ENGLAND

NOW! MAKE BIG MONEY THE MAGIC SCREEN WAY
MAKE UP TO £1 PER HOUR AND MORE SPARE OR FULL TIME

PRINT IN FULL COLOR!
NO PRINTING PRESS NEEDED
SIMPLE, EASY, IF YOU KNOW HOW

YOU CAN REPRODUCE IN FULL COLOR ON -

EXAMINE FREE AT HOME FOR 5 DAYS or our MONEY BACK GUARANTEE

AMAZING NEW PROCESS

Get in Now and Early. A grand opportunity, hobby—and profession if you choose. All the secrets in one A-Z comprehensive course with **complete 3-colour 12" x 10" printing frame and all equipment.** Simple, fascinating, cheap. No type to buy. Print anything on paper, wood, cloth, etc. Letters, print, photographs or the boldest signs. Special 7/6 Discount to MC Readers **if you act now.** 35/- outfit for **ONLY 27/6** *Post Paid*

AMERICAN PUBLISHERS SERVICE, DOCKING RD., SEDGEFORD, NORFOLK

GENERAL CERTIFICATE

Wolsey Hall (founded 1894) provides successful postal tuition for the G.C. of E. exams. of London, Oxf., Camb., and the Northern Universities. Moderate fees, instalments. **Prospectus** (mention exam.) from C. D. Parker, M.A., LL.D., Dept. GK50,

WOLSEY HALL, OXFORD

CIGARETTE CARDS

Send 6d. for CATALOGUE of 1,000 different series. Special offer 100 different cards 2/9. Albums to hold 200 cards 1/9½.
Dept. "M." E.H.W. Ltd., 42, Victoria St., London S.W.1

Ian Allan's
LATEST BOOKS

Premier Line, L.N.W.R.	25/-
British Trains	2/6
T.I. Rail Photo. Album, No. 2	2/6
Service Suspended	2/6
A.B.C. Civil Aircraft Marking	2/6
A.B.C. Military Aircraft Marking	2/6
A.B.C. Motor Car Spotting	2/-
A.B.C. British Road Services	2/-

32, STATION APPROACH
LONDON BRIDGE, LONDON S.E.1

BOOKS:

"Planning and Layout"	3/6
"Layout and Survey"	4/6
"London's Underground"	12/6

RAILWAY ACCESSORIES:	00	0
Plastic Grey Stone Walls, 8 in.	11d.	11d.
Plastic Haystacks	1/4½	—
Plastic Buffer Stops	11d.	—
Plastic Platelayers' Huts	11d.	—
Sheet L.M.R. or S.R. Station Signs ..	7d.	—
Sheet Station Notices	2½d.	7d.
Six Plastic Sacks, assorted	1/2½	1/9
Weighbridge and Office	7/6	—
Platform Yard Crane	3/9	6/3

Special Agents Graham Farish, Hornby-Dublo, Trix.
Postage extra "00" or "0" Parts List 6d. per post.
TYLDESLEY & HOLBROOK (M.E.T.A.)
109, DEANSGATE, MANCHESTER 3

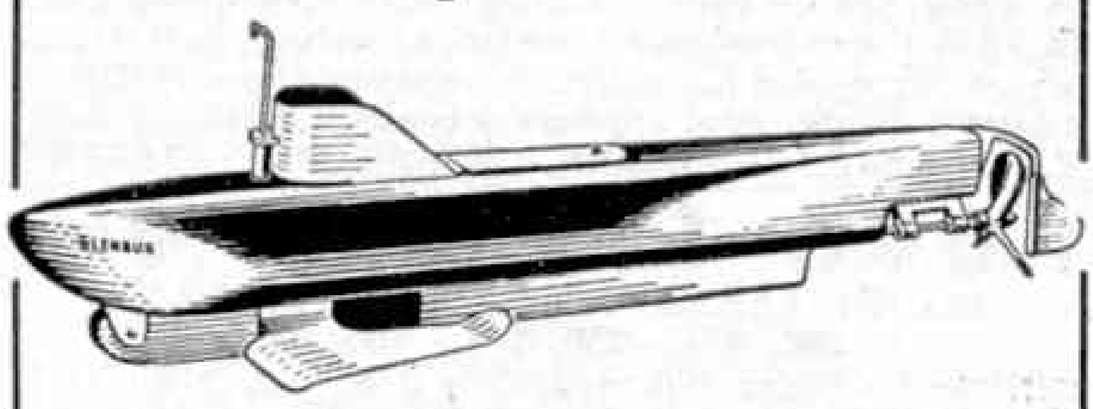
PERSONAL ATTENTION MEANS A LOT TO THE MODELLER
We have the largest stock of model materials, aircraft and railway kits and accessories in the North. Your mail order by return. Send 4d. stamp for eight-page list.
WILMSLOW MODEL CO.
Water Lane, WILMSLOW, Cheshire

LENS OF SUTTON 50, CARSHALTON ROAD, SUTTON, SURREY
Plenty of back numbers always available of "Meccano Magazines" 1933–1941, 9d. each; 1942–1949, 6d.; 1950 onwards, 9d. Also "Model Railway News," "Model Railway Constructor," "Model Engineer," all 6d. each. All "Buses Illustrateds," 1/6 each. "Trains Illustrateds" (Vol. 2—Dec. 1950), 1/- each; 1951 issues, 1/6, each. "Railway Magazines" pre-1942, 2/- each; 1942–date 1/6. Glossy P.C.'s of Buses, Trams and Locos., 6d. each. Good clean mixed cigarette cards, 50 for 1/-. Sets 1/6. Anything of a Railway nature bought, sold or exchanged.

A NEW JIGSAW every WEEK!
Write for details to:—
Department M.E.
GRAYBANK JIGSAW SERVICE
22, Cliffe Terrace — BRADFORD — Yorks.
Please enclose 2½d. stamp

Learn Shorthand by 1st June. (1 hour's study nightly). 1st lesson 2½d. stamp. **Duttons (Dept. MO), 92, Gt. Russell St., W.C.1**

GUARANTEED 90 feet of DIVING performance!



The famous 'GLENBUR' MK.I SUBMARINE
suitable for every climate. Overall length 14 in.
PRICE 22/6
(postage and packing 1/- extra)

and her equally famous sister-ship, the MK.II model, DIVING—more than 30 feet. Overall length 7½ in. ... ... **PRICE 14/6**
(postage and packing 9d. extra)

Order now, sending P.O. to:—
GLEN-BURROUGHS & CO. LTD.
FORMBY, LANCS., ENGLAND

***Diana* AIR GUNS and PISTOLS**

For sport and practice in the open air (also indoors with the new Milbro Plastic Pellets).
From your local sports shop or if in any difficulty write
MILLARD BROTHERS LIMITED
Diana Works, Carfin, Lanarkshire, Scotland

A New "Wayside and Woodland" Book
FRESHWATER LIFE of the BRITISH ISLES
by John Clegg, *of the Haslemere Educational Museum*
This new book is one of the very few dealing with all aspects of freshwater life, and it is intended for those generally interested in the subject, as well as the serious student. Boys and girls who study pond-life will find it invaluable. ... **21s. net.**
FREDERICK WARNE & CO. LTD.
1-4, Bedford Court, London W.C.2

STAMP ADVERTISEMENTS

(See also pages 232 and 234)

THE DUKE AND HIS QUEEN

IN 1951 Canada honoured the royal visit by issuing the first stamp showing Queen Elizabeth II with her husband, the Duke of Edinburgh.
IN 1948 the Queen's Marriage was commemorated.
IN 1947 there was issued the large Graham Bell stamp.
These 3 fine used Canadian Stamps are offered **FREE** to all genuine approval applicants enclosing 2½d. postage.
H. B. LANG, BURNBANK, MAUCHLINE, AYRSHIRE

1,000 STAMPS 6'6

ALL DIFFERENT. NO GREAT BRITAIN.
500, 3/-. 250, 1/6. 100, 9d.
BRITISH COLS.: 100, **1/3**; 200, **3/3**; 300, **6/6**. TRIANGULARS: 10, **1/6**; 25, **4/6**; 50, **10/-**. RAILWAY ENGINES: 15, **1/3**; 25, **2/3**; 50, **5/6**. FLAGS: 10, **1/3**; 25, **2/9**. MAPS: 10, **1/3**; 25, **2/9**. SHIPS: 10, **1/-**; 25, **2/3**. AIRMAILS: 25, **1/6**. POSTAGE 2½d. EXTRA.
Approvals and Catalogue of stamp bargains on request.
S. Tatlow & Sons, Eckington, Sheffield

FREE 100 **STAMPS ALL DIFFERENT** including Jet Bomber, Skymaster Plane, Railway Engine and other Fine Stamps to all applicants requesting Bargain Discount Approvals enclosing 4d. for postage, etc. (Without approvals 1/-).
A. HUGHES, 34, LOCHALINE STREET, LONDON W.6

★ **WORLD-WIDE PACKETS** ★
Sample selection 1/-. ✣ ✣ 2½d. stamp for lists.
J. THOMPSON, 42, BOURNEMOUTH ROAD, BLACKPOOL

✣ **FREE SEYCHELLES NEW ISSUE FREE** ✣
Just send 2½d. for 50% DISCOUNT APPROVALS.
M. THEOBALD, (MM), 6, Dell Corner, West Drayton

50 CHINA 1/6, 50 BR. COLS. 1/6, 100 WORLD 1/6.
Approvals on request with Free Wallet. Send 2½d.
BETCHLEY'S, 20, CLERMONT ROAD, BRIGHTON

AMERICAN MAGAZINES
Subscriptions arranged for Popular Science, Model Railroader, Trains, etc. Popular Mechanics books available. S.A.E. Lists: **PETER F. HOBSON, DEPT. M.M., 79, SOUTHBROOK ROAD, EXETER**

CRYSTAL SET KITS 15/11 post free. Easily constructed. Endless entertainment and no further expense. Headphones **15/-**.
W. Buckle (Dept. M), 77, Horringer Rd., Bury St. Edmunds

READERS' SALES AND WANTS

SALES

Over 50 different kinds of Dinky Toys, (Buses, Cars, Lorries and Aeroplanes) all in good condition. Also Dinky Supertoys, apply—P. Davenport, Yarsop House, Mansel Lacy, Hereford.

Hornby Gauge 0 Clockwork Trains, Dinky Toys and Supertoys. Will exchange for Hornby-Dublo. Send S.A.E. for list.—MacGregor, Gate Burton Rectory, Gainsborough, Lincs.

Hornby-Dublo Gauge 00 "*Duchess of Atholl*" Electric Train Set, in good condition with Transformer, Points, spare Rails, etc., £9/10/- or nearest offer. S.A.E. to—Dashwood, 10, Laburnam Road, Biggleswade, Beds.

"M.Ms." April 1947 to December 1951 complete, good condition. Offers—Millett, House in the Wood, Capel, Surrey.

"M.Ms." January 1942—July 1951, nine missing. Good condition. Lot only 25/-.—Duesbery, 14, Kettering Road, Romford, Essex.

"M.Ms." 1944-50 Complete and in perfect condition. Also 20 copies 1942-3. No reasonable offer refused.—Hattersley, 20a, South Street, Epsom, Surrey.

Meccano Outfit, equivalent to No. 7, in Wooden Case; many extras including Two No. 1 Clockwork Reversing Motors and one Magic motor. £3/5/- or offer. Also ED Bee Engine, two Aeroplanes—one in kit form. Fuel and all Accessories for control-line flying £2.—Field, 1, Bishopswood Road, London N.6

MECCANO MAGAZINE

Registered at the G.P.O., London, for transmission by Canadian Magazine Post.

EDITORIAL AND ADVERTISING OFFICES:
LIVERPOOL 13, ENGLAND.
Telegrams: "Meccano, Liverpool."

Readers' Sales and Wants. Private advertisements (i.e., not trade) are charged 1d. per word, minimum 1/-. Cash with order. Readers' advertisements are published as soon as possible; inclusion in the first issue after receiving them cannot be guaranteed.

Hornby Gauge 0 Rolling Stock (including Bogie Coaches) Locomotives, Tinplate Track etc., for sale. Excellent condition. Stamp for list.—Freeman, 16, West Avenue, West Bridgford, Nottingham.

39 Dinky Toys for sale. All under half price. Prices range from 6d. to 1/9. S.A.E. for list.—M. Dickens, 198, Coventry Road, Nuneaton, Warwickshire.

"Railway Magazines," unbound years complete 1924 to 1950 inclusive. Also "Railways," unbound years 1942-1950 inclusive and "Locomotive Magazines" 1938-1950 inclusive, unbound. Offers—32, Cropthorne Road, Shirley, Birmingham.

Bassett-Lowke 0 L.M.S. Compound Clockwork Locomotive, as new £5, view Bristol or London by appointment.—Dodd, 7, The Dell. Westbury on Trym.

30 Real Photographs (Aircraft) S.A.E. for list.—Hilton, 108, Tattersall Gardens, Leigh-on-Sea.

WANTS

Urgently required for Library. "M.Ms." 1940 to 1943 inclusive. Would prefer bound volumes. Must be in good condition, preferably Mint. Good prices paid whether bound or otherwise. Please send details to—Ian Ellis, 33, Hurst Grove, Bedford.

Model Loom Leaflet. Any condition. State price required.—John Ballyn, 2, Stella Maris Flats, Tower Road, Sliema, Malta G.C.

"M.Ms." January 1930 to December 1937. Reasonable condition. I will pay 8/- per volume.—Storer, 5, Earl Street, Earl Shilton, Nr. Leicester.

Odd Foreign Coins and Notes.—C. J. Barker, Lawrence House, St. Annes, Lancs.

Electric Train Set, Gauge 0 or 00 in good order. Details to:—J. C. Wood, 12, N. Barcombe Road, Liverpool 16.

Hornby Clockwork special Standard Compound L.M.S. 4-4-0 with Tender and Key.—Fowle, Sunny Row, Epperstone, Nottinghamshire.

20 volt A.C. Power Units required. Full particulars to—58, Blackfen Road, Sidcup, Kent.

Readers wishing to exchange some of their 9.5 mm. 30 ft. and 60 ft. films, please write for more details, enclosing S.A.E. to—B. Tattersall, 83, Thursby Road, Burnley, Lancs. All letters answered.

Hornby-Dublo Electric Points, Switches and Signals.—Drew, 218, Old Bedford Road, Luton, Beds.

Pre-war copies Railway or Locomotive Magazines or any other Railway Journal, in reasonable order. State price and dates.—Maffey, 2, Sinclair Street, Christchurch, N.Z.

Obsolete Dinky Toys required. Army Vehicles, Guns; pre-war Tractors and Taxis in particular. Send details of prices, condition, etc.—Cooper, Silver Birches, Thurston, Suffolk.

Hornby-Dublo "*Duchess of Atholl*" Locomotive and Tender wanted in exchange for "*Sir Nigel Gresley*" Locomotive and Tender. Must be in good condition and running order.—Box No. "M.M." 100.

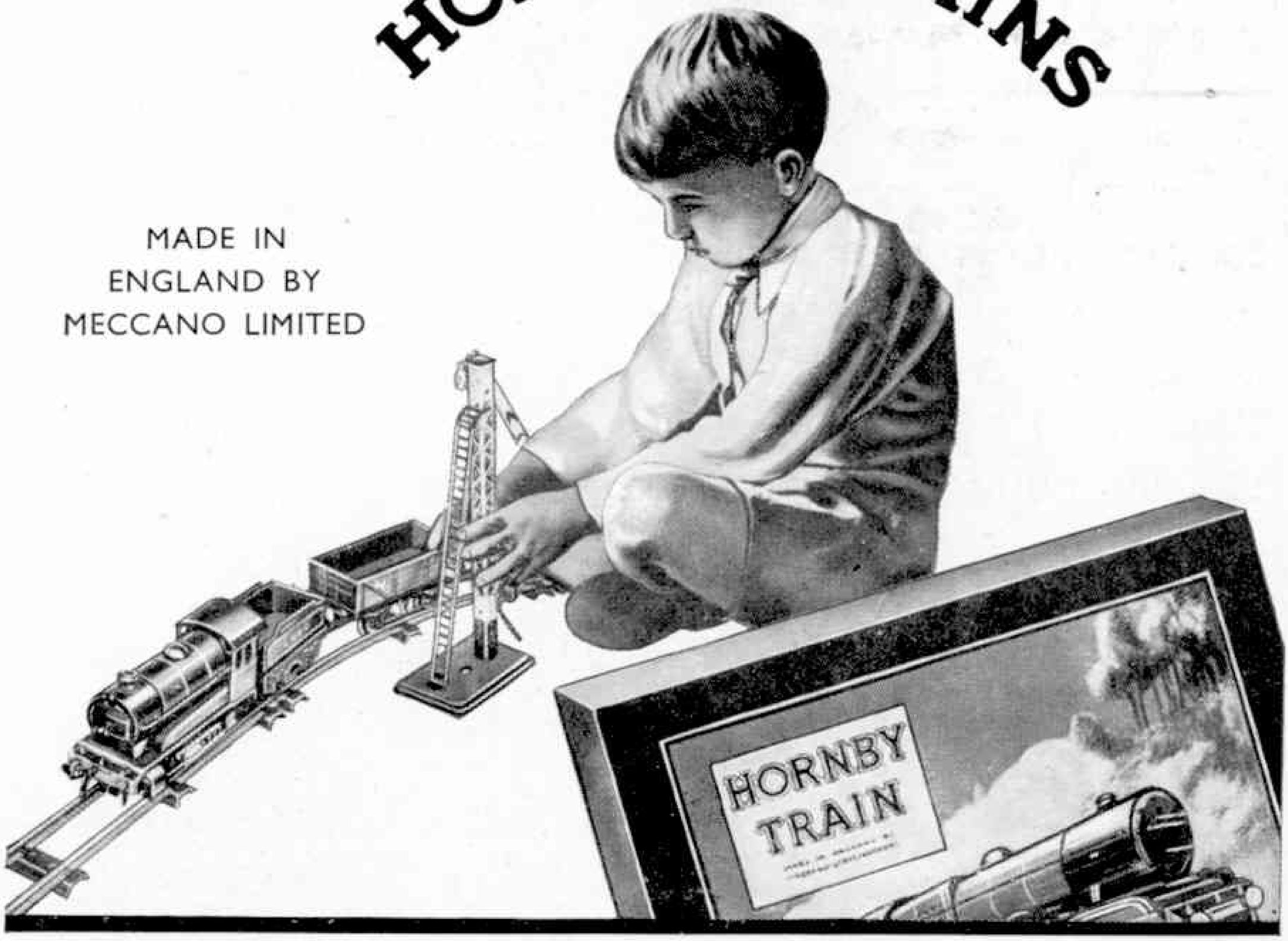
Dinky Toys and Toy Soldiers any condition. Also Trix Trains. S.A.E. for particulars. Will answer all replies. Write—J. F. Tempone, 2621—92nd Street, Jackson Heights, L.I., New York, U.S.A.

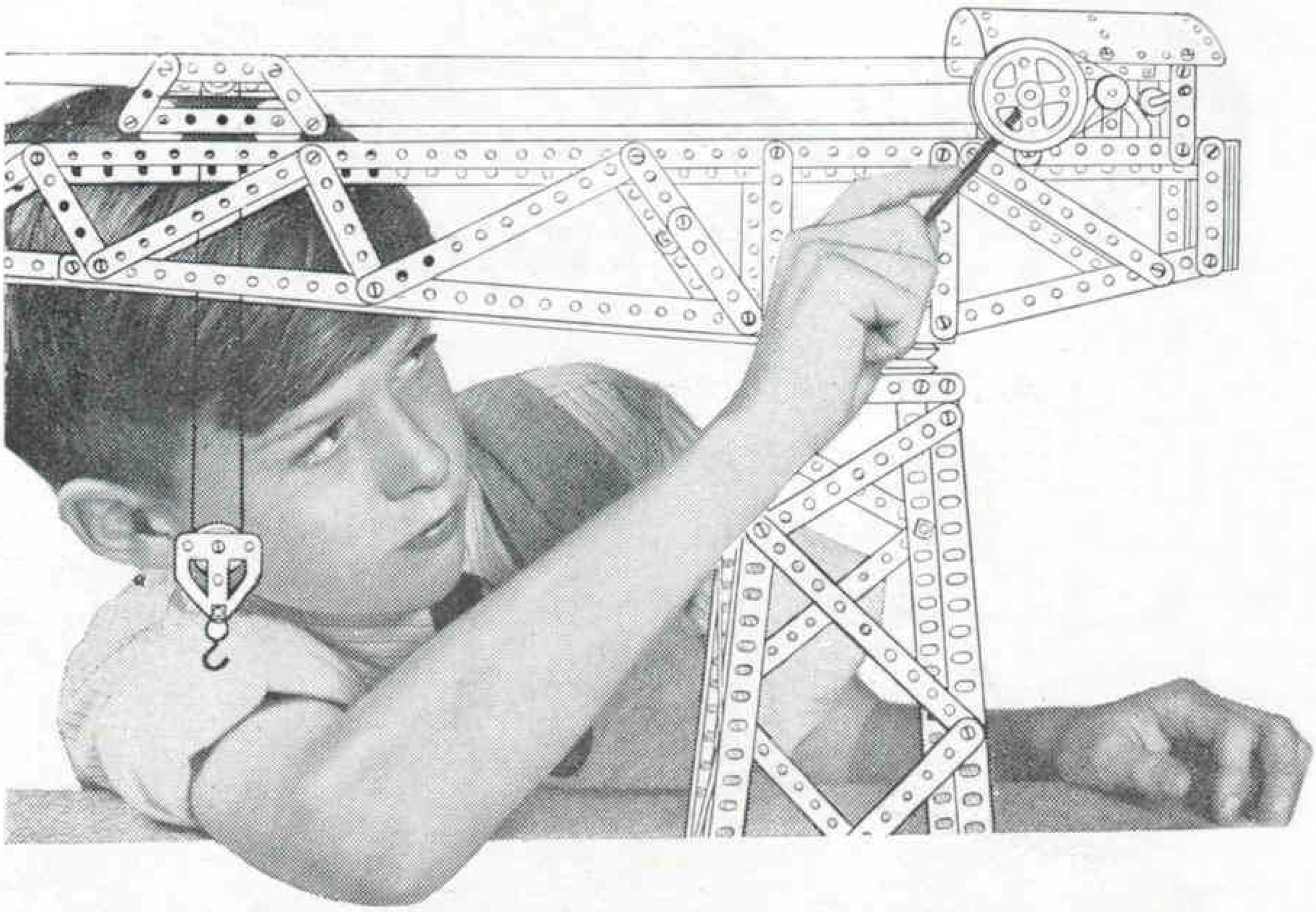
Endless fun with Hornby Trains

A Hornby Clockwork Train will give you hours of enjoyment. It's great fun to own, manage and operate a railway of your own. See Hornby Trains at your local dealers.

HORNBY TRAINS

MADE IN
ENGLAND BY
MECCANO LIMITED





Build a crane . . . then a bridge . . .

. . . and after that lots more! With Meccano you can build model after model, each one a real engineering job. Small outfits grow into big ones with accessory outfits and spare parts. There's no end to the fun with Meccano! Your local dealer has supplies of Meccano outfits.

MECCANO

If you experience any difficulty in obtaining the particular Meccano outfit you require, write to Meccano Ltd., Liverpool 13.

PUBLISHED BY MECCANO LTD., BINNS ROAD, LIVERPOOL 13, ENGLAND
Printed by John Waddington Ltd., Leeds and London